Sexual Minority Youth Diversity and Resilience

A Dissertation
SUBMITTED TO THE FACULTY OF THE
UNIVERSITY OF MINNESOTA
BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

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May 2017

Acknowledgements

I would like to thank my dissertation committee members, Dr. Annie Hansen-Burke, Dr. Ted Christ, Dr. J.B. Mayo, and Dr. Clayton Cook for their support from the conception of this study to a completed dissertation. I would also like to thank my fellow classmates, cohort members, and the program faculty at the University of Minnesota – Twin Cities for their encouragement and support throughout this journey. I will always be grateful to those individuals that I have been fortunate enough to meet throughout my graduate school career.

Abstract

These studies were part of a research line to examine how the definitions of sexual minority youth influence how and what is learned about members and subgroups in this heterogeneous population. The first study was an examination of how membership in the sexual minority population is influenced by the definition(s) of sexual orientation, as measured by the Minnesota Student Survey (MSS). The study examined the within-group variability in the populations of sexual minority youth, and discordance between reported sexual identity and sexual behavior. Results indicated that sexual orientation definitions yielded distinct prevalence rates for sexual minority youth, with some differences in prevalence of males and females across definition categories. Overall, sexual orientation definition and gender did not predict age. Evidence regarding the congruence of sexual identity and sexual behavior was inconclusive for males and females. The second study was an examination of protective factors and their interaction with alternate definitions of sexual minority youth. The second study used Latent Profile Analysis (LPA) to identify the profile structure of sexual minority MSS participants based on a combination of individual-level protective factors. Results indicated that heterosexual students scored higher on developmental skills and supports compared to non-heterosexual students. Across students, three resilience profiles existed: low, medium, and high. Finally, age and sexual minority status significantly predicted resilience profile membership.

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Chapter 1: Introduction

The heterogeneous subgroup of sexual minority youth includes a wide variety of individuals that are sometimes difficult to place within the three discrete categories typically used in research: heterosexual, bisexual, and homosexual/gay/lesbian (Atkins, 2013; Cohler & Hammack, 2006; Kember, Christ, & Hansen-Burke, 2015; Vrangalova & Savin-Williams, 2012). Sexual minority youth may include youth whose sexual orientation is anything other than exclusively heterosexual, and may involve aspects of attraction, behavior, and/or identity (Savage & Harley, 2009). Subsequently, sexual minority youth include those individuals who identify as gay (G), lesbian (L), bisexual (B), or queer/questioning (Q), those who have engaged in same-sex behavior, those who have experienced same-sex attraction (Hansen, 2007), or those who do not adopt any specific sexual identity (Cohler & Hammack, 2006). Overall, sexual minority youth include individuals whose identities, attractions, or behaviors are other than exclusively heterosexual (Diamond, 2003). This is a challenging population to consistently identify across research studies because youth and adolescents' sexual attraction, sexual behavior, and sexual identity are not always congruent (Kember et al., 2015).

Despite the heterogeneity of sexual minority youth, the majority of research characterizes LGBQ students as a single class or group, which neglects likely nuances and distinctions that are well-recognized within the sexual minority youth population and are very likely to have meaningful implications as we learn about these distinct populations. In a literature review of forty-eight empirical studies on sexual minority youth, prevalence rates of non-heterosexual youth were between 3% and 24.8% (Kember, Christ, & Hansen-Burke, 2015). These prevalence rates depended on the analytical

decisions made by researchers in their reporting of population-based survey results across the U.S. and Canada, as well as measurement decisions in constructing the survey instruments. Across the forty-eight studies reviewed, many of the studies practiced some form of disaggregation procedure throughout their analyses, likely influencing interpretation of results (Kember et al., 2015). In many instances, those identified as lesbian, gay, or bisexual, or even those unsure of their sexual orientation (Garofalo, Wolf, Wissow, Woods, & Goodman, 1999) were examined as a single sexual minority subgroup (i.e., Austin, Ziyadeh, Kahn, Camargo, Colditz, & Field, 2004; Austin, Conron, Patel, & Freedner, 2007; Birkett, Espelage, & Koenig, 2009; Blake, Ledsky, Lehman, Goodenow, Sawyer, & Hack, 2001; Eisenberg & Resnick, 2006; Espelage, Aragon, Birkett, & Koenig, 2008; Faulkner & Cranston, 1998; Garofalo et al., 1998; Goodenow, Szalacha, & Westheimer, 2006; Igartua, Thombs, Burgos, & Montoro, 2009; Lock & Steiner, 1999; Remafedi, French, Story, Resnick, & Blum, 1998; Resnick, Bearman, Blum, Bauman, Harris, Jones…, & Udry, 1997). Decisions for disaggregation and interpretation were specific to the purpose and research questions for each individual study (Kember et al., 2015).

Our understanding of sexual minority youth drives individualized intervention planning in the school setting, and relies upon appropriate analytical procedures, measurement tools, and valid interpretations and uses of survey responses and scores. Bridging research and practice, The American Psychological Association (APA) acknowledged the need to recognize within-group variance in the LGBQ community, as documented in "Guidelines for psychological practice with Lesbian, Gay, and Bisexual Clients" (2012). Guideline 21 is as follows: *In the use and dissemination of research on*

sexual orientation and related issues, psychologists strive to represent results fully and accurately and to be mindful of the potential misuse or misrepresentation of research findings. Thus, it is essential for psychologists to maintain an awareness of subgroups within the sexual minority community, to remain cognizant of appropriate generalizations of findings, and to produce valid interpretations of survey results to provide interventions, services, and supports that create a positive school climate and experience for all sexual minority youth.

Kane's Argument-Based Validity

According to Kane (2013), the validity of an interpretation depends on the likelihood of the claims being made. The process of validation involves an evaluation of proposed claims' coherence and completeness (Kane, 2013). The claims that we make about the experiences of sexual minority youth is largely influenced by research using large, population-based surveys. Many large, school-based surveys include items that assess dimension(s) of sexual orientation amongst other demographic survey items (Kember et al., 2015). Aside from demographic information, these surveys include items intended to monitor health-risk behaviors and health outcomes, both physical and mental, through representative data among youth and adolescents with the goal to improve school programs and services. According to Kane's argument-based approach to validity (2013), a survey participant responds to a survey item, or multiple items, about sexual attraction, sexual behavior, and/or sexual identity. Next, researchers use this item response to generalize about a broader universe of responses regarding the individual's sexual orientation. Through extrapolation, researchers draw inferences about what this survey response (or responses) might imply about the participant's sexual orientation. Finally,

researchers use this inference to make decisions; thus, the survey response holds specific implications. Given valid interpretations, these measures can ultimately help researchers and practitioners distinguish how sexual minorities are similar to and different from the general population, illustrating the experiences of sexual minority youth to better inform practice. At a foundational level, this translation of research into practice requires useful, meaningful, and appropriate measurement of the experiences of sexual minority youth.

Interpretations of assessment results and responses have continued to refine the profile of sexual minority youth with the ultimate goal to inform implementation of effective prevention and intervention efforts (Saewyc et al., 2004). Through these valid interpretations, we have gained a better understanding of the everyday challenges and experiences faced by sexual minority youth, which has helped to shape interventions and services provided to sexual minority youth across various ecological contexts and levels intended to create supportive school environments (Goodenow et al., 2006).

Purpose

These studies were part of a research line to examine how the definitions of sexual minority youth influence how and what is learned about the experience of members and subgroups in this heterogeneous population, as well as the utility of this information in providing services, supports, and interventions in the school setting that both empower and support sexual minority youth. For the purpose of this paper, definitions of sexual minority youth are the result of various empirical analysis decisions when interpreting sexual orientation survey measure data, sometimes referred to in the literature as “operationalization” (Matthews, Blosnich, Farmer, & Adams, 2014).

Specifically, these research studies examined the interaction between various definitions of sexual minority youth with developmental assets, emphasizing resilience.

Chapter 2: Valid Interpretations of Sexual Orientation Survey Responses

> [Sexuality is] a central aspect of being human throughout life that encompasses sex, gender identities and roles, sexual orientation, eroticism, pleasure, intimacy and reproduction. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviors, practices, roles and relationships... Sexuality is influenced by the interaction of biological, psychological, social, economic, political, cultural, legal, historical, religious and spiritual factors (WHO, 2006, p. 5).

Sexual orientation is multifaceted and includes an individual's sexual attraction, sexual identity, arousals, fantasies, and sexual behaviors towards persons of the same sex, other sex, or both sexes (Bell, Weinberg, & Hammersmith, 1981; LeVay & Valente, 2006; LeVay & Baldwin, 2012), and is dynamic (not static) in nature (Klein, Sepekoff, & Wolf, 1985; Berkey, Perelman-Hall, & Kurdek, 1990). This multi-dimensional aspect of a person's identity consists of at least three continuous dimensions (Sell, 1997): sexual orientation identity, sexual attraction, and sexual behavior (Sell & Petrulio, 1996; Laumann et al., 1994; Hughes & Eliason, 2002; Kember et al., 2015; Solarz, 1999; Savin-Williams, 2006).

Dimensions of Sexual Orientation

Sexual orientation identity can be described as an individual's conception of his or her own sexuality (Cass, 1984; Coker et al., 2010). Heterosexual (straight), homosexual (gay and lesbian), and bisexual are the most commonly used terms by researchers to describe sexual orientation identities (Shively & De Cecco, 1984), and resemble the discrete sexual categories in which researchers typically identify

participants (Vrangalova & Savin-Williams, 2012). Sexual attraction represents a psychological component or state and refers to the direction of sexual feelings, desire, and romantic interest toward individuals of the other sex (heterosexuality), the same sex (homosexuality), or a combination of sexes (bisexuality; LeVay, 1993; Austin, Conron, Patel, & Freedner, 2007; Sell, 1997; McNeely & Blanchard, 2010). Finally, sexual behavior refers to genitally intimate activity between an individual and another member of the same or other gender (LeVay, 1993). According to some researchers, sexual behavior may include any overt behavior between individuals that is sexual, involves erotic arousal, and in many instances, results in the satisfaction of sexual urges (Beach, 1950).

There are many methodological decisions that influence research on sexual orientation. While the field has progressed in regards to creating best practices to measure sexual orientation in survey research, data disaggregation for the purpose of appropriate analysis and data interpretation and operationalization of data in empirical analyses remains understudied (Matthews et al., 2014). Generally, the assessment of sexual orientation in sexual minority research is limited to one or two dimensions (Kember et al., 2015). Not surprisingly, assessment decisions have empirical consequences (Igartua et al., 2009; Sell, 1997; McCabe, Hughes, Bostwick, Morales, & Boyd, 2012; Brewster & Tillman, 2012; Rotheram-Borus & Fernandez, 1995; Bostwick et al., 2010). Not only does the assessment of a single dimension of sexual orientation (in place of multiple dimensions) conceal sexual minority youth who may exhibit same or both-sex attractions or behaviors but do not yet adopt a sexual minority identity (Russell, Seif, & Truong,

2001), researchers' interpretation of those item responses further influence our understanding of sexual minority youth.

Performance of Survey Questions

At the most rudimentary level, the prevalence of non-heterosexual orientation varies depending on measurement instrumentation, how sexual minority youth are defined, and interpretation and treatment of survey responses (Igartua et al., 2009). Savin-Williams and Ream (2007) reported that same-sex romantic attraction ranged from 4.5-12.9% across 7th to 12th grade students participating in the National Longitudinal Survey of Adolescent Health. Reports of same-sex behavior ranged from 1 to 3% (Savin-Williams & Ream, 2007). Despite these prevalence rates, approximately 97.2% of males and 95.8% of females identified as predominantly or exclusively heterosexual.

Aside from dimension of sexual orientation assessed, sexual minority youth definitions have consequences (Matthews et al., 2014). For example, Matthews and colleagues (2014) demonstrated variability of risk outcomes based on different definitions of sexual orientation through the use of Youth Risk Behavior Survey (YRBS) data, a cross-sectional survey conducted by the Centers for Disease Control and Prevention (CDC). Matthews and colleagues (2014) concluded that separate dimensions of sexual orientation explained unique and significant sources of variability in risky behaviors. In another review of pooled YRBS data, Kann and colleagues (2011) concluded that the prevalence of skipping school due to feeling unsafe differed significantly between those students who identified as lesbian or gay (21.1%), and those students who indicated same-sex sexual experiences (15.2%). In this instance, a greater number of students who *identified* as a sexual minority reported skipping school in

comparison to those students reporting same-sex sexual *behaviors* (Kann et al., 2011). This discordance between dimensions of sexual orientation and conclusions regarding risky behavior are not limited to YRBS data. For example, Brewster and Tillman (2012) reported that while 44% of female respondents from the National Survey of Family Growth who identified as lesbian or bisexual reported smoking, only 14% of females who indicated any same-sex sexual experiences reported smoking.

Ultimately, the method and items used to assess sexual orientation should be dependent upon the intended use of the data (Kember et al., 2015), whether intended to inform future research, professional development and training efforts for educators, data-based decision making within a response to intervention framework (RtI), or serve as a needs-assessment for the establishment of school-based sexual minority youth support programs. Thoughtful and valid assessment of sexual orientation can help us to better understand mechanisms of both risk and resilience, while also informing intervention efforts, prevention efforts, and written school policy that engages students, school staff, families, and communities.

Purpose

The purpose of this study was to examine the extent to which the reported sexual minority population, and characteristics of this population, are a function of alternate definitions of sexual orientation, as measured by the Minnesota Student Survey (MSS). The specific goal of the study was to identify definitions of sexual orientation that allow for meaningful comparisons and reveal within-group variability amongst sexual minority youth. In addition, the study examined the extent to which sexual identity and sexual behavior are congruent. More specifically, the study explored patterns of overlap across

sexual orientation identity and sexual behavior in a sample of adolescents from the 2013 MSS. The following research questions were identified:

1. To what extent are sexual minority youth population prevalence rates dependent upon definitions of sexual minority?
2. What is the distribution of male and female students within defined sexual orientation groups?
3. To what extent are sexual identity and sexual behavior congruent for male and female youth?

Method

Data come from the 2013 MSS, a statewide survey administered to monitor various health, safety, and academic-related issues across 5th, 8th, 9th, and 11th grade students. The MSS is a triennial survey that was first administered in 1989 in the school setting and includes questions on a variety of experiences, including substance use, violence and safety, school climate, healthy habits, and the surrounding community environment. Students in 9th and 11th grade completed a total of 116 multiple-choice items, including several items on sexual behavior and sexual orientation identity. For the majority of participating schools, students completed the survey independently during class time after the school district obtained either passive or active parental consent. The University of Minnesota's Institutional Review Board approved this secondary data analysis project using the MSS. The Minnesota Department of Education (MDE) provided data after a formal data request.

Participants

Approximately 84% of public school districts in Minnesota participated in the 2013 survey, with participation rates varying across school districts and grade levels (Minnesota Student Survey, 2015). Approximately 69% (*n* = 42,381) of 9th grade students and 62% (*n* = 36,958) of 11th grade students participated. The sample of 9th and 11th grade students consisted of 79,339 students (39,546 females; 49.8%).

Measures

The MSS asked three items related to sexual orientation. Two items (Items 102 and 103) assessed sexual behavior near the end of the survey: "During the last 12 months, with how many different [male/female] partners have you had sexual intercourse?" *None, 1 person, 2 persons, 3 persons, 4 persons, 5 persons, 6 or more persons*. The MSS also asked a single sexual orientation identity item near the beginning of the survey: "Which of the following best describes you?" *Heterosexual* (*straight*), *Bisexual, Gay or Lesbian, Not sure (Questioning*). The last two items of relevance were items 1 and 101. Item 1 prompted: "Are you:" *Male* or *Female*. For the purpose of this study, these responses served as evidence of participant gender. This decision is consistent with survey Item 25, in which the authors of the MSS refer to "gender" as "being male or female." Finally, item 101 asked, "Have you ever had sexual intercourse ("had sex")?" *Yes* or *No*. To date, there is no peer-reviewed published literature on reliability or validity evidence for the MSS using external data (M. Rodriguez, personal communication, October 30th, 2015). However, the Minnesota Student Survey Interagency Team, which consists of the Minnesota Department of Education, the Minnesota Department of Health, the Minnesota Department of Human Services, the Minnesota Department of Public Safety, and the

Minnesota Department of Corrections, has conducted various processes to verify survey responses, and remove inconsistent or extreme responses.

***Sexual Orientation Definitions*.** Using the previously described MSS items, sexual orientation variables were constructed to represent contrasts between heterosexual youth and sexual minority youth. Two definitions of sexual minority were constructed crossing the sexual behavior items with participant response to the "male" or "female" survey item (Item 1). Definition 1 compared those with sexual behavior with partners of the same gender (same-gender sexual behavior) to those with exclusively other-gender sexual behavior (sexual behavior only with partners of the other gender), and no sexual behavior in the past 12 months (3 groups). Definition 2 compared individuals with exclusively same-gender sexual behavior, sexual behavior with both male and female partners, exclusively other-gender sexual behavior, and no sexual behavior in the past 12 months (4 groups).

Definitions of sexual minority were also constructed using the sexual orientation identity item. Definition 3 compared those who identified as heterosexual to those who identified as bisexual, gay or lesbian, or not sure (2 groups). Definition 4 compared students who identified as gay or lesbian with those who identified as bisexual and those who identified as heterosexual (3 groups). Finally, definition 5 compared those students who identified as "not sure" with those who identified as gay or lesbian, those who identified as bisexual, and those who identified as heterosexual (4 groups). The distribution of sexual behavior by sexual identity was summarized for both females and males. All analyses were stratified by gender (Brewster & Tillman, 2012; Bostwick, Boyd, Hughes, & McCabe, 2010). Definitions are summarized in

Table 1 below.

Table 1.

Sexual minority definitions

Definition	MSS Items	Group 1	Group 2	Group 3	Group 4
Definition 1	Behavior and Gender	Exclusively other-gender sexual behavior	Any same-gender sexual behavior	No Sexual Behavior	
Definition 2	Behavior and Gender	Exclusively other-gender sexual behavior	Exclusively same-gender sexual behavior	Sexual behavior with both males and females	No Sexual Behavior
Definition 3	Sexual Orientation Identity	Heterosexual	LGB or Not Sure		
Definition 4	Sexual Orientation Identity	Heterosexual	Bisexual	L/G	
Definition 5	Sexual Orientation Identity	Heterosexual	Bisexual	L/G	Not Sure

Note. L = Lesbian; G = Gay; B = Bisexual. All sexual behavior reported for the last 12 months.

Analysis

Analyses of individual items that assessed sexual orientation included frequency distributions and cross-tabulations with chi-square tests of significance. More specifically, cross-tabulation of the sexual behavior and sexual identity items were examined for congruence (Bontempo & D'Augelli, 2002). A chi-square analysis was also used to compare the prevalence of participant gender within sexual minority definition groups (Busseri et al., 2006; Busseri et al., 2008). Due to the number of statistical tests computed, only results where $p < .001$ were considered statistically significant, a practice consistent with previous analytical methodology (Busseri et al., 2008). Prevalence estimates were considered to be significantly different if their 95% Confidence Intervals

(CIs) did not overlap (Robin et al., 2002). In addition to the cross-tabulation of identity and behavior, congruence of participant responses to the identity (Definition 5) and behavior items was evaluated based on Cramér's V, an indicator of correlation strength (Brewster & Tillman, 2012). The Mann-Whitney U Test (Mann & Whitney, 1947) was used to examine the relationship between the dichotomously coded identity definition (Definition 3) and ordinal behavior responses. Finally, a two-way analysis of variance (ANOVA) compared the mean age of students in each sexual minority subgroup by gender (Busseri et al., 2008).

Results

Data Quality

Those who did not report sexual contact in the course of their lifetime (66.6% of total; n = 52,818; Item 101) were excluded from the analysis due to the nature of the congruence analyses. Cases with missing responses were removed from the analytic sample (.05%, n = 418, Item 102; .03%, n = 283, Item 103; and .02%, n = 208, Item 9; 10.5%, n = 8,351, Item 101). Finally, following an approach to identify untruthful responses (Robinson & Espelage, 2011; Bontempo et al., 2002), data were reviewed for students that indicated that they had not yet had sexual intercourse and also reported having sexual intercourse with one or more male or female partners. The final total analytic sample consisted of approximately 18,170 students (23% of total).

Analytic Assumptions

A chi-square goodness-of-fit test indicated unequal expected proportions of males and females, indicating that the observed group frequencies for males and females significantly differed from what we would expect by chance alone, $\chi^2(1) = 4.11$, $p = .043$.

Overall, males had a disproportionately larger response rate compared to females. For this reason, and given our interest in examining males and females separately, a stratified random sample of 1,000 male and 1,000 female cases were identified for the analysis. This random sample with equitable representation across male and female groups provided a more balanced design, and helped meet one of three analytic assumptions for the Mann-Whitney test (MacFarland & Yates, 2016) along with that of the ANOVA (Fox, 2015). The remaining two assumptions for the Mann-Whitney test include a measurement scale that is at least ordinal (coding sexual orientation as 1 [Heterosexual] and 2 [Non-heterosexual], and sexual behavior as 1 [None], 2 [1 Person], 3 [2 Persons], 4 [3 Persons], 5 [4 Persons], 6 [5 Persons] and 7 [6 or more persons] for items 102 [During the last 12 months, with how many different males have you had sexual intercourse?] and 103 [During the last 12 months, with how many different females have you had sexual intercourse?]). Finally, there was independence within the samples, such that no student was classified as both 0 (male) and 1 (female) for gender, 1 (heterosexual) and 2 (non-heterosexual) for sexual orientation identity, or as multiple categories for sexual behavior. For the two-way ANOVA, age distributions approximated normality (skewness $z < 1.96$) but there was evidence of unequal variances across gender and sexual orientation groups, according to Levene's test. Transforming the dependent variable did not achieve homoscedasticity. Given this failure to meet assumptions, multiple linear regression with robust standard errors determined the extent to which sexual orientation definition and gender predicted age. Heteroscedasticity was corrected for by using a heteroscedasticity consistent covariance matrix (HCCM; Long & Ervin, 2000) with an

HC3 estimator due to smaller cell sample sizes (MacKinnon & White, 1985). As depicted in

Table 2 through Table 6, each subgroup had greater than five individuals, fulfilling the sample size assumption for the chi-square statistic (Cochran, 1952). In addition, all observations were independent of one another (no relationship between any of the students), and the variable of interest involved mutually exclusive categories (gender).

The Consistency of Prevalence Rates By Definitions of Sexual Minority Youth

Overall, s*exual minority youth include individuals whose sexual orientation identity or behavior is not exclusively heterosexual* (Diamond, 2003). Definitions 1-5 yielded distinct prevalence rates of sexual minority youth rates, respectively: 12.5% [11.1, 13.8], 14.7% [13.1, 16.3], 9.8% [8.4, 11.2], 7.7% [6.5, 8.9], and 10.2% [8.8, 11.6]. Using a 95% confidence interval, there were significant differences between Definitions 1 and 2, 3, and 4; between Definitions 2 and 3, 4, and 5; and between Definitions 4 and 5. There were not significant differences between Definition 1 (behavior) and 5 (identity); between Definition 3 (identity) and 4 (identity); and between Definition 3 (identity) and 5 (identity).

Distribution of Males and Females Within Definitions of Sexual Minority Youth

There were some differences in prevalence across genders ($\alpha < .001$) within each definition of sexual minority youth.

Definition 1. There was a statistically significant relationship between gender (2) and sexual orientation (3) among definition 1 sexual minorities, $\chi^2(2) = 27.65$, $p < .001$, with males more likely to report *any* sexual behavior with partners of the *same gender* (ASG; 15.6%) and no sexual behavior in the last 12 months (8.6%) compared to females (9.3% and 5.6%, respectively). Females were more likely to report sexual behavior

exclusively with partners of the *other gender* (EOG; 85.1%) compared to males (75.8%; *Figure 1*;

Table 2). Further post hoc *z* tests for cell comparison using a Bonferroni correction (Sharpe, 2015) revealed that the proportions of males that reported no sexual behavior (8.6%) and ASG sexual behavior (15.6%) were not significantly different. However, the proportion of males that reported EOG sexual behavior (75.8%) was significantly larger than the proportion that reported ASG or no sexual behavior. The same was true for females: 85.1% of females reported EOG sexual behavior, and this was significantly larger than those females that reported ASG (9.3%) or no sexual behavior (5.6%).

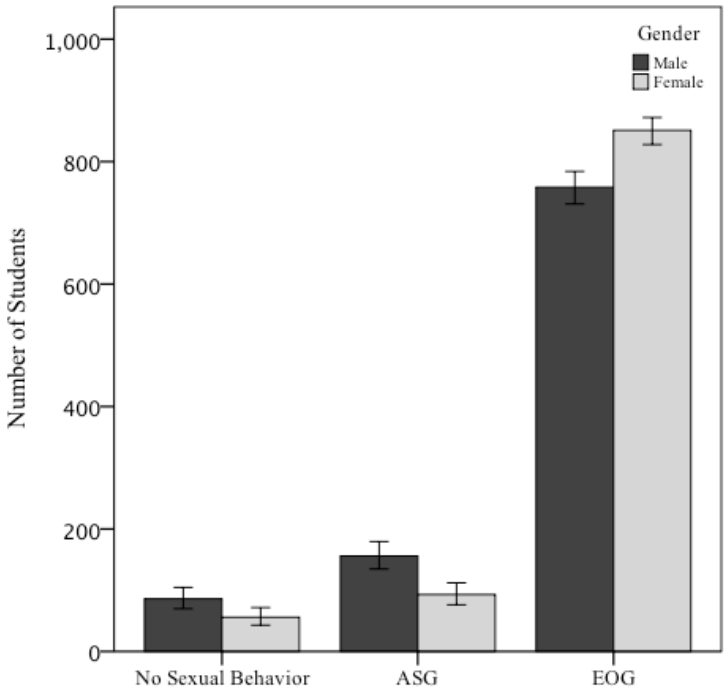

Figure 1. Definition 1. This figure illustrates definition 1 categories by gender.

Table 2.

Comparison of male and female samples within Definition 1 (12.5% Sexual Minority Youth)

	Male		Female		Total	
	%(N)	95% CI	%(N)	95% CI	%(N)	χ^2
Any Same Gender	15% (156^1)	13-17%	9% (93^2)	7-11%	13% (249)	$\chi^2(2) = 27.65$***
Exclusively Other Gender	75% (758^1)	73-78%	85% (851^2)	83-87%	80% (1,609)	
No Sexual Behavior	8% (86^1)	6-10%	5% (56^1)	4-7%	7% (142)	

Note. CI = Confidence Interval. No Sexual Behavior participants include those that did not report sexual behavior with male or female partners in the past 12 months. [a]Different numerical superscript indicates that 95% CI's do not overlap between males and females, and thus, there is a significant difference in proportions horizontally.

***$p < .001$. Sexual Minority Youth refer to those youth that are non-heterosexual.

[a]Different numerical superscript indicates that 95% CI's do not overlap between males and females, and thus, there is a significant difference in proportions.

[b]Cramér's V.

Definition 2. There was a statistically significant relationship between gender (2) and sexual orientation (4) among definition 2 sexual minorities, $\chi^2(3) = 28.76$, $p < .001$, with males more likely to report sexual behavior with partners of *both other* and *same genders* (BG; 13.1%) compared to females (7.3%), and females more likely to report EOG sexual partners (85.1%) compared to males (75.8%; Table 3). Further post hoc *z* tests revealed that the proportion of males that reported BG sexual partners (13.1%) was significantly larger than those that reported *exclusively same-gender* sexual partners (ESG; 2.5%) and significantly smaller than those that reported EOG sexual partners (75.8%). This also held true for females: the proportion of females that reported BG sexual partners (7.3%) was significantly larger than the proportion that reported ESG sexual partners (2.0%), but significantly smaller than the proportion that reported EOG sexual partners (85.1%).

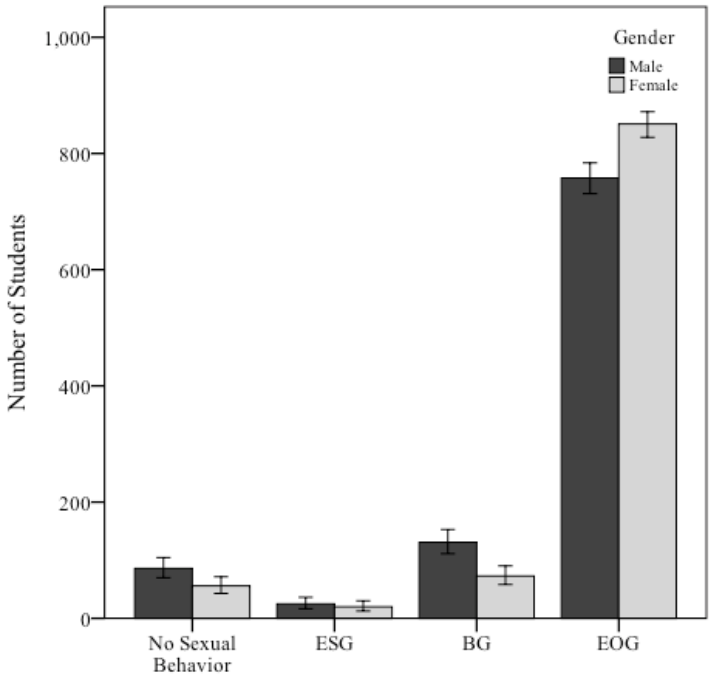

Figure 2. Definition 2. This figure illustrates definition 2 categories by gender.

Table 3.

Comparison of male and female samples within Definition 2 (14.7% Sexual Minority Youth)

	Male		Female		Total	
	%(N)	95% CI	%(N)	95% CI	%(N)	χ^2
Exclusively Same Gender	2% (25^1)	1-3%	2% (20^1)	1-2%	2% (45)	$\chi^2(3) = 28.76$***
Both Genders	13% (131^1)	11-15%	7% (73^2)	5-8%	10% (294)	
Exclusively Other Gender	75% (758^1)	73-78%	85% (851^2)	82-87%	80% (1,609)	
No Sexual Behavior	8% (86^1)	6-10%	5% (56^1)	4-7%	7% (142)	

Note. CI = Confidence Interval. No Sexual Behavior participants include those that did not report sexual behavior with male or female partners in the past 12 months. [a]Different numerical superscript indicates that 95% CI's do not overlap between males and females, and thus, there is a significant difference in proportions horizontally.

***$p < .001$. Sexual Minority Youth refer to those youth that are non-heterosexual.

[a]Different numerical superscript indicates that 95% CI's do not overlap between males and females, and thus, there is a significant difference in proportions.

[b]Cramér's V.

Definition 3. There was a statistically significant relationship between gender (2) and sexual orientation (2) among definition 3 sexual minorities, $\chi^2(1) = 20.36$, $p < .001$,

with males more likely to identify as heterosexual (93.2%) than females (87.2%), and males less likely to identify as *bisexual* (B), *gay* (G), *lesbian* (L), or "*not sure*"/*Questioning* (6.8%; Q) compared to females (12.8%;

Table 4). Further post hoc *z* tests revealed that the proportion of males that identified as heterosexual (93.2%) was significantly larger than the proportion that identified as bisexual, gay, or not sure (6.8%). The same was true for females: 87.2% identified as heterosexual while only 12.8% identified as bisexual, lesbian, or not sure.

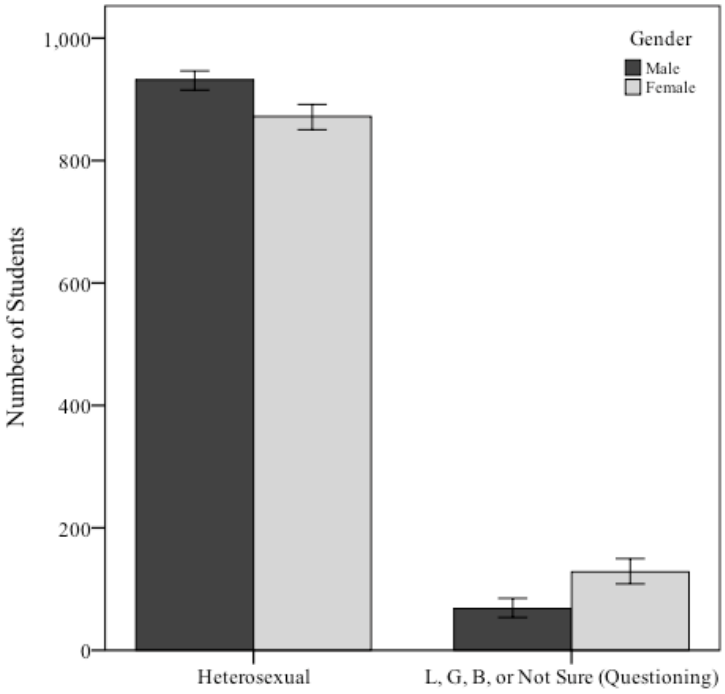

Figure 3. Definition 3. This figure illustrates definition 3 categories by gender.

Table 4.

Comparison of male and female samples within Definition 3 (9.8% Sexual Minority Youth)

	Male		Female		Total	
	%(N)	95% CI	%(N)	95% CI	%(N)	χ^2
Heterosexual	93% (932^1)	91-94%	87% (872^2)	85-89%	90% (1,804)	$\chi^2(1) = 20.36$***
L/G, B, or Not Sure/Q	6% (68^1)	5-8%	12% (128^2)	10-14%	9% (196)	

Note. CI = Confidence Interval. B = Bisexual. L = Lesbian. G = Gay. Q = Questioning. No Sexual Behavior participants include those that did not report sexual behavior with male or female partners in the past 12 months. [a]Different numerical superscript indicates that 95% CI's do not overlap between males and females, and thus, there is a significant difference in proportions horizontally.
***$p < .001$. Sexual Minority Youth refer to those youth that are non-heterosexual.
[a]Different numerical superscript indicates that 95% CI's do not overlap between males and females, and thus, there is a significant difference in proportions.
[b]Cramér's V.

Definition 4. There was a statistically significant relationship between gender (2) and sexual orientation (3) among definition 4 sexual minorities, $\chi^2(2) = 50.50$, $p < .001$, with males less likely to identify as bisexual (2.1%) compared to females (9.5%;

Table 5). Further post hoc *z* tests revealed that the proportion of males that identified as gay (2.3%) was larger than the proportion that identified as bisexual (2.2%). However, the proportion of females that identified as bisexual (9.7%) was larger than the proportion that identified as lesbian (1.5%). Finally, the proportion of females and males that identified as bisexual (2.2% and 9.7%, respectively) was significantly smaller than the proportion that identified as heterosexual (95.6% and 88.8%, respectively).

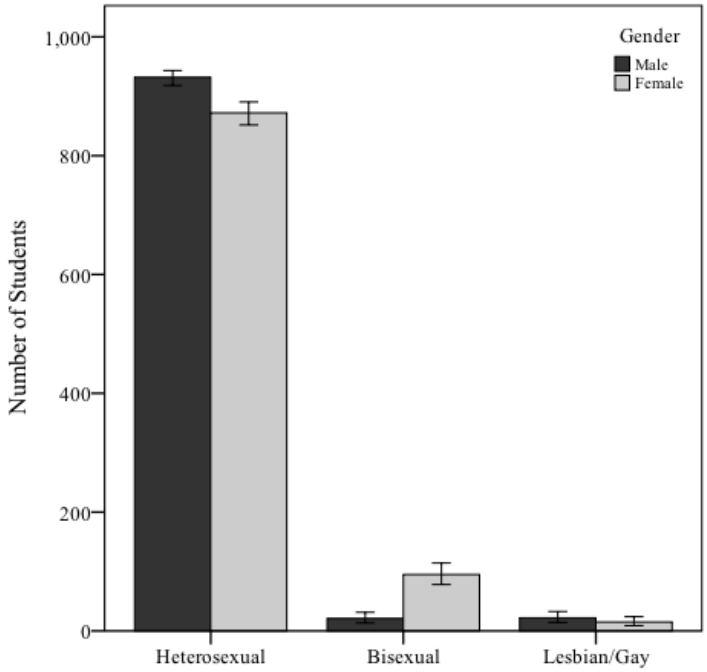

Figure 4. Definition 4. This figure illustrates definition 4 categories by gender.

Table 5.

Comparison of male and female samples within Definition 4 (7.7% Sexual Minority Youth)

	Male		Female		Total	
	%(N)	95% CI	%(N)	95% CI	%(N)	χ^2
Heterosexual	93% (932[1])	91-94%	87% (872[2])	85-89%	90% (1,804)	$\chi^2(2) = 50.50$***
L/G	2% (22[1])	1-3%	1% (15[1])	.75-2%	2% (37)	
B	2% (21[1])	1-2%	9% (95[2])	7-11%	6% (116)	

Note. CI = Confidence Interval. B = Bisexual. L = Lesbian. G = Gay. Q = Questioning. No Sexual Behavior participants include those that did not report sexual behavior with male or female partners in the past 12 months. [a]Different numerical superscript indicates that 95% CI's do not overlap between males and females, and thus, there is a significant difference in proportions horizontally.
***$p < .001$. Sexual Minority Youth refer to those youth that are non-heterosexual.
[a]Different numerical superscript indicates that 95% CI's do not overlap between males and females, and thus, there is a significant difference in proportions.
[b] Cramér's V.

Definition 5. Finally, there was a statistically significant relationship between gender (2) and sexual orientation (4) among definition 5 sexual minorities, $\chi^2(3) = 51.67$, $p < .001$ (Table 6). Further post hoc *z* tests revealed that the proportion of males that

identified as not sure or questioning (2.5%) was larger than the proportion that identified as bisexual (2.1%). The proportion of females that identified as bisexual (9.5%) was larger than the proportion that identified as not sure or questioning (1.8%).

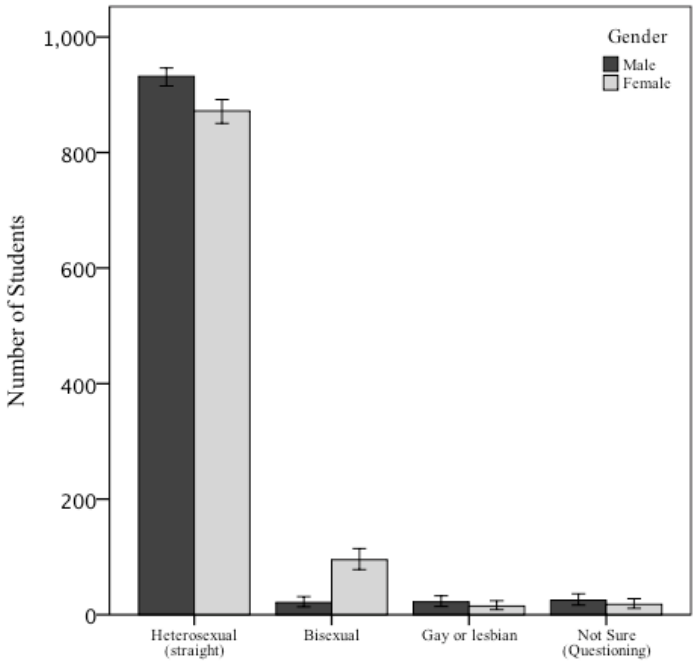

Figure 5. Definition 5. This figure illustrates definition 5 categories by gender.

Table 6.

Comparison of male and female samples within Definition 5 (10.2% Sexual Minority Youth)

	Male		Female		Total	
	%(N)	95% CI	%(N)	95% CI	%(N)	χ^2
Heterosexual	93% (932[1])	91-94%	87% (872[2])	85-89%	90% (1,804)	$\chi^2(3) = 51.67$***
L/G	2% (22[1])	1-3%	1% (15[1])	.75-2%	2% (37)	
B	2% (21[1])	1-2%	9% (95[2])	7-11%	6% (124)	
Not Sure/Q	2% (25[1])	1-3%	1% (18[1])	.98-2%	2% (43)	

Note. CI = Confidence Interval. B = Bisexual. L = Lesbian. G = Gay. Q = Questioning. No Sexual Behavior participants include those that did not report sexual behavior with male or female partners in the past 12 months. [a]Different numerical superscript indicates that 95% CI's do not overlap between males and females, and thus, there is a significant difference in proportions horizontally.

***$p < .001$. Sexual Minority Youth refer to those youth that are non-heterosexual.

[a]Different numerical superscript indicates that 95% CI's do not overlap between males and females, and thus, there is a significant difference in proportions.

[b] Cramér's V.

Age by Gender within Sexual Minority Definitions

Multiple linear regression was performed to predict age based on sexual orientation definition by gender. According to the full model (entry or simultaneous method), these variables did not statistically significantly predict age, $F(9, 1941) = 2.61$, $p = .005$, $R^2 = .007$. In other words, neither gender nor sexual orientation definition contributed significantly to age. Regression results are summarized in Table 7.

Table 7.

Results from the Regression of Age on Sexual Definition and Gender

Model	Predictor	*b*	Standard error of *b*	*p* value
1	Gender	.08	0.14	.55
	Definition 1	.09	.03	.003
	Definition 1 * Gender	-.037	.05	.47
2	Gender	.15	.16	.35
	Definition 2	.11	.04	.006
	Definition 2 * Gender	-.06	.06	.30
3	Gender	-.06	.19	.75
	Definition 3	-.30	.14	.03
	Definition 3 * Gender	.08	.17	.66
4	Gender	.02	.17	.90
	Definition 4	-.22	.12	.06
	Definition 4 * Gender	-.01	.15	.96
5	Gender	-.03	.11	.76
	Definition 5	-.11	.06	.08
	Definition 5 * Gender	.04	.09	.66
6	Gender	.13	.35	.71
	Definition 1	.06	.11	.57
	Definition 2	.03	.13	.81
	Definition 3	-.45	.56	.43
	Definition 4	.11	.36	.76
	Definition 1 * Gender	.11	.19	.58
	Definition 2 * Gender	-.18	.21	.39
	Definition 3 * Gender	.06	.70	.93
	Definition 4 * Gender	.02	.52	.97

The Male-Female Congruence of Sexual Orientation Identity, Sexual Partners, and Sexual Behavior

The cross-tabulation of sexual orientation identification and sexual behavior (partners in the past 12 months) is shown in Table 8 (males) and Table 9 (females). Across all participants, there was a significant Spearman bivariate correlation between reported sexual behavior with male partners and female partners (-.52; Table 10). In other words, individuals that reported sexual behavior with more female partners simultaneously reported sexual behavior with fewer male partners. Across all participants, there was a significant Cramér's V bivariate correlation between sexual behavior with male partners and sexual identity (.13), and sexual behavior with female partners and sexual identity (.09), with sexual behavior with female partners slightly less strongly correlated with sexual identity than sexual behavior with male partners.

Table 8.

Sexually active males: Reported measures of sexual behavior by sexual identity, MSS 2013

	Sexual Orientation Identity, n (%)				
Sexual Behavior	Gay (n = 22)	Bisexual (n = 21)	Heterosexual (n = 932)	Not Sure (n = 25)	Total
Exclusively same-gender (ESG)	10 (45%)	4 (19%)	11 (1%)	0 (0%)	25 (2.5%)
Both genders (BG)	8 (36%)	11 (52%)	103 (11%)	9 (36%)	131 (13.1%)
No sexual behavior	2 (9%)	0 (0%)	80 (9%)	4 (16%)	86 (8.6%)
Exclusively other-gender (EOG)	2 (9%)	6 (29%)	738 (79%)	12 (48%)	758 (75.8%)

Note. Cells are shaded to show congruence between sexual identity and sexual behavior.

Table 9.

S*exually active females: Reported measures of sexual behavior by sexual identity, MSS 2013*

	Sexual Orientation Identity, n (%)				
Sexual Behavior	Lesbian (n = 15)	Bisexual (n = 95)	Heterosexual (n = 872)	Not Sure (n = 18)	Total
Exclusively same-gender (ESG)	8 (53%)	10 (11%)	0 (0%)	2 (11%)	20 (2.0%)
Both genders (BG)	6 (40%)	32 (34%)	33 (4%)	2 (11%)	73 (7.3%)
No sexual behavior	0 (0%)	6 (6%)	49 (6%)	1 (6%)	56 (5.6%)
Exclusively other-gender (EOG)	1 (7%)	47 (49%)	790 (91%)	13 (72%)	851 (85.1%)

Note. Cells are shaded to show congruence between sexual identity and sexual behavior.

Table 10.

Correlations for sexual identity and sexual behavior items

	Male partners	Female partners	Identity
Male partners	--		
Female partners	-.52***	--	
Identity	.13***	.09***	--

Note. *p < .05. **p < .01. ***p < .001 level.

Disaggregated by gender (Table 11), the Spearman bivariate correlations between sexual behavior with male partners and female partners for males (.02) and females (.02) were both insignificant. There was a significant Cramér's V bivariate correlation between sexual behavior with male partners and identity for males (.27). Similarly, there was a significant Cramér's V bivariate correlation between sexual behavior with male partners and identity for females (.17). Finally, there was a significant Cramér's V bivariate correlation between sexual behavior with female partners and identity for males (.17) and a significant bivariate correlation between sexual behavior with female partners and identity for females (.34).

Table 11.

Correlations for sexual identity and sexual behavior items, disaggregated by gender

		Male partners	Female partners	Identity
Male	Male partners	--		
	Female partners	.02	--	
	Identity	.27***	.17***	--
Female				
	Male partners	--		
	Female partners	.02	--	
	Identity	.17***	.34***	--

Note. *p < .05. **p < .01. ***p < .001 level.

Results of the Mann-Whitney U Test indicated that sexual behavior with females in the male non-heterosexual group was not statistically significantly different than

sexual behavior with females in the male heterosexual group ($U = 30854$, $p = .70$). However, sexual behavior with females in the female non-heterosexual group was statistically significantly higher than sexual behavior with females in the female heterosexual group ($U = 31818$, $p < .001$). Sexual behavior with males in the male non-heterosexual group was statistically significantly higher than sexual behavior with males in the male heterosexual group ($U = 15423$, $p < .001$). Finally, sexual behavior with males in the female non-heterosexual group was not statistically significantly different than sexual behavior with males in the female heterosexual group ($U = 53746.5$, $p = .45$).

Discussion

This study examined varying sexual orientation definitions, the prevalence of sexual minority youth, and the congruence between sexual identity and sexual behavior. Further understanding and clarity on these issues can help researchers and educators implement resilience-based and individualized prevention and intervention efforts that are developmentally appropriate, as well as inform written school policy to support all members of the school community, including sexual minority youth. As expected, sexual orientation definitions yielded distinct prevalence rates for sexual minority youth (i.e., non-heterosexual youth). Within each of the explored definitions, there were some differences in prevalence across genders and definition categories. Thus, it is essential for psychologists to understand the empirical consequences of certain survey and assessment decisions to make valid interpretations about the sexual minority population and its distinct subgroups. Overall, sexual orientation definitions and gender did not predict age, which indicates that definitions based on reported sexual orientation identity, those based on reported sexual behavior, and gender did not contribute significantly to variance in age

of participants. Evidence regarding the congruence of sexual identity and sexual behavior for males and females was inconclusive. These findings provide evidence that neither sexual orientation identity nor report of sexual behavior alone is sufficient in identifying sexual minority youth, and that each may identify different sub-populations. Therefore, both dimensions of sexual orientation may be required to better understand characteristics of the sexual minority population, a finding consistent with expert recommendations that identity measurement include more than one dimension of sexual orientation (Badgett, 2009; LGB Youth Sexual Orientation Measurement Work Group, 2003).

The Consistency of Prevalence Rates By Definitions of Sexual Minority Youth

Consistent with the literature review (Igartua et al., 2009; Savin-Williams & Ream, 2007), the prevalence of non-heterosexual youth varied according to the definition of sexual minority youth used. The highest prevalence of sexual minority youth (14.7%, Definition 2) was observed when sexual behavior was used to define the population, and included BG sexual behavior. The lowest prevalence was observed when sexual orientation identity defined the population (7.7%, Definition 4), and only included those that identified as gay, lesbian, or bisexual, excluding those questioning their sexual orientation identity (Laumann et al., 1994; Remafedi et al., 1998; Savin-Williams, 2001). Overall, defining sexual minority youth according to reported sexual behavior was more inclusive compared to defining sexual minority youth according to reported sexual orientation identity. Surveys that use sexual orientation identity to identify "at-risk" sexual minority youth (i.e., for the purpose of identifying a subset of youth that would likely benefit from a targeted intervention) may be underestimating the size of this

population. Even further, these identity-based definitions are likely to neglect the nuances and distinctions recognized across subgroups within the sexual minority population that are most likely to have meaningful implications for prevention, intervention, and effective school policy.

For those researchers using sexual orientation identity survey items to identify sexual minority youth, the present study provides evidence that including those students who may be questioning or are not yet sure of their sexual orientation identity may produce the most liberal (highest) and inclusive prevalence rate. These definitions alone provide evidence that there is incongruence between reported sexual orientation identity and sexual behavior. For example, some individuals that identify as heterosexual may engage in sexual behavior with partners of the same gender, and vice versa. The less inclusive, identity and label-based definitions which resulted in the lowest prevalence estimates of sexual minority youth are not surprising, especially given more recent attention towards adolescents' fluidity in sexual identity labels, questioning whether traditional labels (i.e., lesbian, bisexual, and gay) remain meaningful for this population (Russell, Clarke, & Clary, 2009; Diamond, 2003). In addition, adolescents may simply delay the milestone of identifying with a sexual minority label for a number of reasons, including a lack of available role models, safety concerns, and fear about being "tolerated" by friends, family, and peers (Savin-Williams & Diamond, 2004).

These results may also have implications in regards to sexual identity development amongst youth. It is important to consider the fact that the current study evaluated participants in 9th and 11th grade (i.e., between 14 and 17 years of age). Across time, models of sexual identity development have diversified (Rosario, Schrimshaw, &

Hunter, 2008). Since the results of this study indicated that a definition based on sexual behavior resulted in a larger prevalence rate of sexual minority youth across males and females, this would provide evidence in support of models that propose that sexual activity occurs prior to disclosure of sexual identity to others (Chapman & Brannock, 1987; Fassinger & Miller, 1996; Milton & McDonald, 1984; Rotheram-Borus & Fernandez, 1995).

Distribution of Males and Females Within Definitions of Sexual Minority Youth. Overall, there was a significant relationship between gender and sexual orientation across definitions. Males were more likely to report ASG sexual behavior and BG sexual behavior, compared to females. Males were also more likely to report no sexual behavior in the last 12 months compared to females. Compared to males, females were more likely to report EOG sexual behavior. However, in regards to reporting exclusively same-gender sexual behavior (ESG), males and females were not significantly different.

In regards to sexual orientation identity, males were more likely to identify as heterosexual compared to females. Females were more likely to identify as bisexual compared to males, a trend consistent with previous literature (Hatzenbuehler, 2011; Matthews et al., 2014). Male students were no more likely to report being unsure of their sexual orientation identity than females. These findings are interesting given that several instances of reported sexual behavior showed nearly opposite trends from reported sexual orientation identity. For example, although females were more likely than males to report exclusively other gender (EOG) sexual behavior, they were less likely than males to identify as heterosexual. Similarly, although females were more likely to identify as

bisexual, they were less likely than males to report sexual behavior with both male and female partners. Again, it is important to acknowledge that developmental trajectories are likely to be influenced by a number of factors, including gender, which was supported by the current results. For example, Definitions 1 and 2 (behavior-based) sexual minority males (15.6%) outnumbered sexual minority females (9.3%). However, Definitions 3, 4, and 5 (identity-based) sexual minority females (12.8%, 11.2% and 12.8%, respectively) outnumbered sexual minority males (6.8%, 4.5%, and 6.8%, respectively). This suggests that for females, the milestone of disclosing a sexual identity may precede sexual behavior with same-gender peers, a pattern that deviates from previous research on the sequence of milestones for sexual minority identity development (Calzo, Antonucci, Mays, & Cochran, 2011). For males, the opposite may be true, which is consistent with some previous literature whereby sexual experiences with same-sex partners precede self-identification as a sexual minority (Cohen & Savin-Williams, 1996; Herdt & Boxer, 1996; Savin-Williams, 1995). Overall, these results provided evidence that there may be a significant amount of variability in developmental trajectories of achieved sexual orientation milestones (Friedman, Marshal, Stall, Cheong, & Wring, 2008; Savin-Williams, 1998).

Within each gender, a larger proportion identified as heterosexual compared to bisexual, gay, or not sure. This trend was also true for reported sexual behavior: the proportion of males and females that reported EOG sexual behavior was significantly larger than the proportion that reported ASG or no sexual behavior. While the proportion of males that identified as gay was larger than the proportion that identified as bisexual, this did not hold true for females. The proportion of females that identified as bisexual

was larger than the proportion that identified as lesbian. Consistently, the proportion of females that reported BG sexual behavior was significantly larger than the proportion that reported ESG sexual behavior. Despite more males identifying as gay compared to bisexual, the proportion of males that reported BG sexual behavior was significantly larger than the proportion that reported ESG sexual behavior. Finally, within each gender, the proportion that identified as not sure or questioning was larger than the proportion that identified as bisexual, suggesting that sexual identity development is not yet completed for many high school students.

These findings also provide evidence that female adolescents may prefer more flexible labels and descriptions of their identity (i.e., bisexual) and behavior (i.e., a preference for "any" over "exclusively") more so than adolescent males. In addition, males may engage in more sexual behaviors consistent with sexual minority identity labels, are more comfortable reporting these sexual behaviors, or have experienced this sexual minority milestone at an earlier age compared to females.

Age by Gender within Sexual Minority Definitions

Gender and sexual orientation definitions did not significantly predict age. For males, students that identified as heterosexual (M = 16.13, SD = 1.03) were the oldest and students that identified as bisexual were the youngest (M = 15.71, SD = 1.10). For females, students that identified as questioning (M = 16.33, SD = .91) were the oldest and students that identified as bisexual were the youngest (M = 15.83, SD = 1.01), making students identified as bisexual the youngest across the sample.

Differences in age across groups within definitions were rarely statistically significant. Amongst Definition 1 groups, EOG students were older (M = 16.15 years;

SD = 1.00) than ASG students (M = 15.89 years; SD = 1.10). Amongst Definition 3 groups, those students that identified as heterosexual were older (M = 16.13 years; SD = 1.01) than those students that identified as B, G, L, or Q (M = 15.88 years; SD = 1.06). This pattern is consistent with previously published literature. More specifically, students that identify as non-heterosexual or who report same-gender sexual behavior tend to be younger than heterosexual students or students that report exclusively other-gender sexual behavior (Robin et al., 2002).

The Male-Female Congruence of Sexual Orientation Identity, Sexual Partners, and Sexual Behavior

In regards to congruence of sexual identity and sexual behavior, findings were mixed, confirming previous research that identity and behavior are not entirely congruent (Matthews et al., 2014; Igartua et al., 2009; Sell, 1997; McCabe et al., 2012; Brewster & Tillman, 2012; Rotheram-Borus & Fernandez, 1995; Bostwick, et al., 2010). Without disaggregating by gender, there was a moderate, negative, and significant Spearman correlation between sexual behavior with male and female partners, indicating that individuals that reported sexual behavior with more female partners simultaneously reported sexual behavior with fewer male partners. There were weak but significant Cramér's V bivariate correlations between sexual behavior with male partners and sexual identity, and sexual behavior with female partners and sexual identity. Sexual behavior with female partners was slightly less strongly correlated with sexual identity compared to the correlation between sexual behavior with male partners and sexual identity.

Disaggregated by gender, the Spearman bivariate correlations between sexual behavior with male partners and female partners were insignificant for both males and

females. In other words, participant response to sexual behavior with male partners was not associated with their response to sexual behavior with female partners, regardless of gender, indicating that these behaviors may not be mutually exclusive. However, there was a moderately strong and significant Cramér's V bivariate correlation between sexual behavior with male partners and identity for males, while this same relationship was weak for females. In other words, the relationship between males' response to sexual behavior with other males and their sexual identity was stronger than the relationship between females' response to sexual behavior with males and their sexual identity. Finally, there was a weak but significant Cramér's V bivariate correlation between sexual behavior with female partners and sexual identity for males, and a strong and significant Cramér's V bivariate correlation between sexual behavior with female partners and sexual identity for females. Females' responses about sexual behavior with female partners was more strongly associated with their sexual identity than male responses about sexual behavior with female partners and their sexual identity.

The Mann-Whitney U Test provided additional evidence regarding incongruence between sexual orientation identity and sexual behavior. While we would expect non-heterosexual males to report fewer female partners, this did not hold true. Instead, non-heterosexual males' report of sexual behavior with female partners was not statistically different from heterosexual males' report of sexual behavior with female partners. Similarly, non-heterosexual females' report of sexual behavior with males was not significantly different than heterosexual females' report of sexual behavior with males. One hypothesis for this finding is that perhaps non-heterosexual male and female adolescents engage in heterosexual-congruent sexual behaviors to conform to

heteronormativity by exhibiting a heterosexual identity. Another hypothesis is that perhaps these students are questioning their identity, and thus are engaging in sexual behavior with both males and females.

Despite evidence of some incongruence, in the present sample, there was some evidence of congruence between sexual orientation identity and sexual behavior. For example, non-heterosexual females reported sexual behavior with a greater number of female partners than heterosexual females. Similarly, non-heterosexual males reported sexual behavior with a greater number of male partners than heterosexual males.

According to Table 8 and Table 9, approximately 75.9% of males and 83% of females indicated a sexual orientation identity congruent with their sexual behavior. In other words, approximately 24.1% of males and 17% of females indicated a sexual orientation identity incongruent with their sexual behavior, confirming research conducted previously (Matthews et al., 2014, Igartua et al., 2009, Sell, 1997, Brewster & Tillman, 2012, Bostwick et al., 2009). Across male and female participants, only 75.9% and 83% of participants' sexual orientation identity item response was consistent with their sexual behavior item response, respectively. Of those males that identified as gay or bisexual, only 48.9% responded to the sexual behavior items in a manner consistent with their reported identity. Amongst gay/lesbian or bisexual females, only 36.4% responded to the sexual behavior items in a manner consistent with their reported identity. Of those males and females that identified as "not sure," only 48% and 72% reported exclusively other-gender (EOG) sexual partners, respectively. Matthews et al. (2014) have previously offered several hypotheses for this incongruence, including rapid development during adolescence, and limited opportunities to engage in same-gender sexual behavior due to a

number of influential factors, including a difficulty identifying same-gender romantic partners, or pressure to conform to a heterosexist lifestyle.

Limitations

Several limitations of the present study need to be acknowledged. First, the present study only used participants that reported being sexually active to pursue analyses related to congruence between the sexual orientation identity and sexual behavior items. There may have been students that were not sexually active that identified as a sexual minority youth (i.e., L, G, B, or not sure) that the study could not detect as they were not included in the final analytic sample. Therefore, the present study may underestimate those students in 9th and 11th grade that identify as L, G, B, or not sure. Second, the present study only used cases without missing data on relevant variables (i.e., gender) to minimize the number of assumptions made about students. Those students that responded to sexual behavior items may differ qualitatively from those that skipped these items. Third, those survey items that asked for students to report sexual behavior specifically only pertained to the last 12 months. Assessing sexual activity in the past 12 months may either under or overestimate the prevalence of any sexual orientation group identified in the present study. Finally, the present study used a survey item that allowed students to identify as either male or female to construct sexual orientation definitions. In some instances, an individual's gender (i.e., gender identity) may not be consistent with their biological sex. An individual who identifies as a female and is biologically a female is an example of a *cis*gender individual. An individual who identifies as a male and is biologically a female is an example of a *trans*gender individual. Just as sexual orientation identity and sexual behavior may not be congruent, gender identity, gender expression,

and biological sex may also not be congruent. Since the language of the stem of the survey item did not identify whether the item referred to biological sex or gender, assumptions were made based on later survey items. Despite these shortcomings, the analytical decisions were made to preserve the integrity of individual student responses by making few assumptions.

Chapter 3: Resilience Among Sexual Minority Youth

During adolescence, individuals are challenged to develop a stable identity (Erikson, 1968). Amongst a number of identities that emerge during this period of development is the sexual identity (McNeely & Blanchard, 2010). Healthy sexual development involves a myriad of processes, including physical sexual maturation, acquisition of developmentally-appropriate sexual behaviors, positive sexual identity formation, and developing a sense of overall sexual well-being (McNeely & Blanchard, 2010). Most importantly, there may be multiple diverse pathways to achieve normative sexual identity development (Rosario, Schrimshaw, & Hunter, 2008; Mohr & Fassinger, 2000), for both heterosexual and sexual minority youth (Savin-Williams, 2001; SMY). Despite diverse pathways towards normative sexual identity development, the coming-out process for sexual minority youth typically consists of several milestones: same-sex sexual attraction, same-sex sexual experience or expression, self-labeling, and disclosure ("coming out") to others (Maguen, Floyd, Bakeman, & Armistead, 2002; Savin-Williams & Diamond, 2000; D'Augelli & Hershberger, 1993). As a multidimensional, non-linear (Morris, 1997; Troiden, 1989) and iterative (McNeely & Blanchard, 2010; Troiden, 1989) process, "coming-out" is shaped by unique risk and protective factors that exist at multiple ecological levels (Russell et al., 2005). Our ability to provide a supportive environment that enables successful and normative sexual identity development is dependent upon our understanding of this heterogeneous group of individuals and their experiences.

Interpretations of assessment-based results and responses have continued to refine the profile of sexual minority youth with the ultimate goal to inform implementation of

effective prevention and intervention efforts (Saewyc et al., 2004). Through these interpretations, we have gained a better understanding of the everyday challenges faced by sexual minority youth, including eating disorders, mental health issues, suicidality, substance use and abuse, truancy, social withdrawal, self-esteem, and experiences of peer victimization and harassment. Many of these interpretations have led to decision-making regarding implementation of effective and relevant interventions for sexual minority youth, based on documented challenges and experiences. While these intervention practices are needed, well-informed, and practically important (Russell et al., 2005), sexual minority youths' unique protective factors, patterns of normative development, and resilience remain largely understudied. For the purpose of the current study, protective factors are defined as resources that can promote resilience by either reducing risk, or lessening the impact of stress on well-being. Protective factors exist at the individual, family, and community level (Garmezy, 1991). Luthar, Cicchetti, and Becker (2000) defined resilience as positive adaptation, despite individual exposure to significant sources of stress. More research is needed to increase our knowledge of individual-level protective factors that contribute to positive development of sexual minority youth (Saewyc, 2011). This knowledge base will ensure that we not only document the health disparities for this population, but that we also document factors that promote resilience. More specifically, interventions can be implemented that focus less on remediation and instead emphasize developing a positive, sexual minority identity, educating youth and adolescents about healthy living habits, emotion regulation, coping mechanisms and conflict resolution skills, and enhancing adolescents' self-esteem and school belonging.

This perspective is best reflected in the research and practice of Positive Youth Development.

Positive Youth Development

Positive Youth Development (PYD) encompasses both research and practice spanning a number of fields and disciplines (Benson et al., 2006). As a field, PYD has four underlying qualities: PYD is comprehensive in scope, is organized on the principle of promotion, is developmental, and symbiotic (Benson & Pittman, 2001). Having a comprehensive scope, PYD involves interconnected ecological contexts, including the school, experiences, and opportunities that enhance positive developmental outcomes. PYD is founded on access to positive experiences and opportunities (promotion), and emphasizes the active role that youth play in their own developmental growth (developmental). Finally, PYD is a symbiotic, strength-based approach that builds upon previously established concepts, including resiliency, prevention, and developmental psychology (symbiotic). PYD promotes the idea that all youth have the inherent capacity for positive growth and development when embedded in nurturing relationships, contexts, and ecologies (Benson et al., 2006). More importantly, these nurturing relationships, contexts, and ecologies have an additive effect as individuals develop their capacity to act on their environment.

Developmental Assets Framework. According to Scales and colleagues (2006)**,** *assets* can be defined as "important relationships, skills, opportunities, and values that help guide adolescents away from risk behaviours, foster resilience, and promote thriving." (p. 693) *Developmental assets* are those positive characteristics that serve to protect youth and allow for successful adolescent development (Benson, 2003; Lerner &

Benson, 2003). Consisting of both external and internal assets, Benson (1997) constructed forty developmental assets that include but are not limited to support received from others, social competencies, and positive identity (Edwards et al. 2007), all of which are shaped by the school environment. External assets consist of experiences and relationships involving adults and peers across various contexts (i.e., support, empowerment, boundaries and expectations, and constructive use of time; Scales et al., 2006). Internal assets include qualities at the individual level that help to develop self-regulation (i.e., positive identity, commitment to learning, positive values, and social competencies; Scales et al., 2006).

Linking Assessment and Intervention

As mentioned previously, while some intervention and prevention efforts focus on remediation and reduce risk, others may focus on resilience and prevention, and promote positive development (Benson, 2002) across interconnected ecologies (Scales et al., 2006). Currently, research regarding sexual minority youth has emphasized risk factors associated with negative outcomes; sexual minority resilience has remained largely understudied (Russell et al., 2005). The developmental asset framework lends a positive approach that focuses on resilience and protective factors with regard to sexual minority youth research (Edwards et al. 2007). Just as risk factors have been shown to have a cumulative or additive negative effect on adolescent development, developmental assets, too, can have cumulative effects (Benson et al., 2011; Scales et al., 2006). Through a review of literature, Greenberg and colleagues (2003) concluded that the most effective school-based prevention and youth development approaches are those that take advantage of individuals' resilience assets and improve the school-community environment. While

there is evidence of variability in risk and outcomes as a function of alternate definitions of sexual minority youth (Kann, Olsen, McManus, Kinchen, Chyen, Harris, & Wechsler, 2011), less is known about resilience, developmental assets, and protective factors.

Purpose

The purpose of this second study is to examine various protective factors (i.e., positive perceptions about the school environment, developmental skills, developmental supports, etc.) as a function of definitions of sexual minority youth. Guided by the PYD framework (Benson et al., 2006), this study utilized a person-centered analytic approach to describe profiles of protective factors across sexual minority youth, identifying similarities and differences among these subgroups of individuals. The following research questions were identified:

1. What is the prevalence of developmental skills and supports within and across sexual orientation groups?
2. What are the latent profiles of youth based on identified protective factors? Specifically, how many profiles exist? What percentage of sexual minority youth align with each identified profile?
3. What variables (ethnicity, gender, age, and sexual orientation) predict group membership in the identified latent profiles?

Method

The same data set analyzed in Study 1 was used for this study.

Participants

The same participants from Study 1 participated in this study.

Measures

Rodriguez and colleagues (2015) constructed measures of developmental skills and supports using the 2013 MSS. These measures were the result of positive youth development research, and several scales adopted from the Developmental Asset Profile (DAP, Search Institute). Rodriguez and colleagues (2015) conducted Confirmatory Factor Analysis (CFA) for both developmental skills and supports measures, indicating the extent to which these skills and supports, as measured with the MSS, fit the observed responses. Items on the skills and supports measures were calibrated using the Rasch (latent-trait) measurement model. Scores on both measures were transformed to support interpretation of results. Higher scores indicated a greater presence of the skill or support. Similar to previous literature that has constructed indices of risk (Bontempo et al., 2002), the following measures represent indices of resilience. Preliminary analyses conducted by the Minnesota Youth Development Research Group (2015) have established face validity of these skills and supports measures with educators, school leaders, community leaders and researchers, and support group-level interpretation of results for research purposes. The developmental skills and supports measures were presented to the MSS Interagency Team, resulting in the Team's encouragement that the Minnesota Youth Development Research Group continue to pursue further investigations of the psychometric qualities of these measures. All measures reflect the developmental assets framework and are described below.

Developmental Skills. Commitment to learning is summarized as student engagement in class, preparation for learning, time spent on homework, an achievement orientation, and a belief that being a student is an important role at this point in time.

Positive identity involves control, purpose, and generally feeling positive about the self and future. Social competence includes the ability to deny or resist dangerous and unhealthy experiences, activities, or influences, and the ability to build friendships, express emotions effectively, resolve conflict, and recognize the needs and emotions of others.

Developmental Supports. Empowerment is described as a general sense of safety in one's environment, feeling valued and included, and having responsibilities. Support includes communicating with and feeling cared for by others. Finally, Teacher/School support can best be summarized as the perception that adults at school treat students fairly and care for students.

Analysis

The prevalence of developmental skills and supports were compared across the five definitions of sexual minority groups using one-way analysis of variance (Definitions 1, 2, 4, and 5) and an Independent Samples T-test (Definition 3). Latent Profile Analysis (LPA) was conducted to explore the profile structure of survey participants. More specifically, LPA was used to identify subsets of youth with similar patterns of responses on various protective factors, including developmental skills and supports, as measured by the MSS. *MPlus* (Muthén and Muthén, 2002) statistical software was used for the LPA to determine the most parsimonious number of profiles needed to best describe the association among the protective factors assessed across sexual minority youth. The likelihood of exhibiting protective factors was modeled as a function of profile membership. Profile membership was assigned based on an individual's probability of being categorized in each profile, which was later constructed

as a categorical variable used as a proxy for profile membership. Several test statistics informed model fit (Bregman, Malik, Page, Makynen, & Lindahl, 2013). First, the Bayesian Information Criterion (BIC; Schwartz, 1978), the sample-size adjusted BIC (SSABIC); Sclove, 1987), and the Akaike Information Criterion (AIC) were used to guide selection of the most parsimonious number of profiles, with lower values indicating better model fit. The Lo-Mendell-Rubin likelihood ratio test (Lo, Mendell, & Rubin, 2001), and an adjusted version were used to compare models with k and k-1 profiles. A significant *p* value for this test indicates that the estimated model is preferable to a model with one fewer profile. In addition, the parametric bootstrap likelihood ratio test (BLRT; McLachlan, 1987) was used, as some researchers have suggested that this test provides a better indicator of profiles across all models considered (Jung & Wickrama, 2008) compared to the Lo-Mendell-Rubin LRT. Finally, entropy values provided a summary of overall classification quality, with values closer to 1 indicating better classification of individuals to specific profiles (Henson, Reise, & Kim, 2007; Lo et al., 2001; McLachlan & Peel, 2000; Nylund, Asparouhov, & Muthén, 2007; Yang, 2006). Entropy values greater than .80 indicate that the latent profiles are highly discriminating (Muthén & Muthén, 2007). Overall, the number of profiles were determined by a combination of the above described factors, in addition to the research question, parsimony, theoretical hypotheses, and interpretability (Bauer & Curran, 2003; Muthén, 2001; Muthén, 2003; Rindskopf, 2003). Once profile solutions were selected, multinomial logistic regression was conducted to describe how the identified profiles were different with respect to demographic variables (age, ethnicity, sexual orientation, and gender). Definitions are summarized in Table 12 below.

Table 12.

Sexual Minority Definitions

Definition	MSS Items	Group 1	Group 2	Group 3	Group 4
Definition 1	Behavior and Gender	Exclusively other-gender sexual behavior	Any same-gender sexual behavior	No Sexual Behavior	
Definition 2	Behavior and Gender	Exclusively other-gender sexual behavior	Exclusively same-gender sexual behavior	Sexual behavior with both males and females	No Sexual Behavior
Definition 3	Sexual Orientation Identity	Heterosexual	LGB or Not Sure		
Definition 4	Sexual Orientation Identity	Heterosexual	Bisexual	L/G	
Definition 5	Sexual Orientation Identity	Heterosexual	Bisexual	L/G	Not Sure

Note. L = Lesbian; G = Gay; B = Bisexual. All sexual behavior reported for the last 12 months.

Results

Data Quality

Only complete cases were used for data analysis. In addition to the cases removed for missing responses on relevant items in Study 1, cases missing responses for items related to developmental skills and supports (6 items total, n = 2,768; 15.9%), cases with missing age (n = 15; .1%), and ethnicity (n = 75; .5%) were also removed from the analytic sample. Due to the number of statistical tests computed, only $p < .001$ were considered statistically significant, a practice consistent with previous analytical methodology (Busseri et al., 2008). Simple random sampling selected 1,000 male and 1,000 female cases for the analytic sample.

Analytic Assumptions

For the ANOVA and Independent T-test analytic assumptions, the dependent variables (developmental skills and supports) were continuous, and the independent variables (sexual minority definitions) consisted of two or more categorical groups. There was no relationship between observations in each of the sexual minority subgroups, and each subgroup within a definition was mutually exclusive. In regards to outliers, dependent variables were transformed into z-scores. Cases with a developmental skill or support variable z-scores outside of 3.5 standard deviations were removed from the analytic sample. All dependent variables approximated a normal distribution (skewness $z < 1.96$) within definition subgroups. Finally, there was homogeneity of variances, with the exception of Definitions 4 and 5 on the Empowerment (support) and Social Competence (skill) variables, according to Levene's test. Therefore, Welch's adjusted *F* ratio was used for these two variables (Field, 2013).

In regards to the LPA, the bootstrap likelihood ratio test (BLRT) was used, as there are no parametric assumptions about the data. BLRT has been shown to be a better indicator of profiles across all models considered (Jung & Wickrama, 2008) compared to the Lo-Mendell-Rubin LRT.

Multinomial logistic regression involves six assumptions. In the present study, the dependent variable of interest was nominal (profile membership). In addition, all independent variables were continuous (age) or nominal (gender, ethnicity, and sexual orientation). There was independence of observations (each group was made up of different students), and profile membership was mutually exclusive. All independent

variables were weakly correlated with one another (non-multicollinearity; Variance Inflation Factors [VIF] < 2), and outliers were removed prior to the latent profile analysis.

Sample Characteristics

Using definitions provided in Study 1, demographic and resilience characteristics were compared across sexual minority groups, disaggregated by gender. Higher scores on Development Skills and Supports indicated a greater presence of the skill or support.

Table 13.

Demographic and Resilience Characteristics of Sexual Minority and Other Students: Definition 1

Number (N=2,000) (unweighted)	Males			Females		
	ASG	EOG	No Sexual Bx	ASG	EOG	No Sexual Bx
Demographic Characteristics						
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age	15.98 (1.10)	16.18 (1.00)	15.92 (1.13)	15.66 (1.21)	16.12 (.98)	15.90 (1.03)
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
13 years	--	--	--	--	--	--
14 years	19 (12.8)	56 (7.4)	10 (12.5)	19 (24.1)	73 (8.6)	9 (13)
15 years	33 (22.3)	142 (18.8)	21 (26.3)	17 (21.5)	137 (16.1)	13 (18.8)
16 years	29 (18.8)	185 (24.5)	16 (20)	16 (20.3)	262 (30.8)	23 (33.3)
17 years	66 (44.6)	358 (47.4)	32 (40)	26 (32.9)	373 (43.9)	24 (34.8)
18 years	1 (0.7)	14 (1.9)	--	1 (1.3)	5 (0.6)	--
19-20 years	--	1 (0.1)	1 (1.3)	--	--	--
Ethnicity						
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
White	97 (65.5)	561 (74.2)	58 (72.5)	47 (59.5)	645 (75.9)	44 (63.8)
Black	9 (6.1)	31 (4.1)	4 (5.0)	6 (7.6)	24 (2.8)	6 (8.7)
Hispanic	16 (10.8)	65 (8.6)	5 (6.3)	6 (7.6)	49 (5.8)	7 (10.1)
Asian	3 (2.0)	13 (1.7)	2 (2.5)	1 (1.3)	17 (2.0)	1 (1.4)
American Indian	3 (2.0)	13 (1.7)	3 (3.8)	1 (1.3)	18 (2.1)	--
Native Hawaiian or Pacific Islander	1 (0.7)	--	1 (1.3)	--	1 (0.1)	--
Somali	2 (1.4)	4 (0.5)	--	--	1 (0.1)	--
Hmong	7 (4.7)	8 (1.1)	1 (1.3)	1 (1.3)	15 (1.8)	3 (4.3)
Other/Mixed Ethnicity	10 (6.8)	61 (8.1)	--	17 (21.5)	80 (9.4)	8 (11.6)
Resilience Experiences						
Developmental Skills	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Commitment to Learning	10.53 (1.40)	10.77 (1.31)	10.81 (1.22)	10.48 (1.24)	11.09 (1.24)	11.29 (1.18)
Positive Identity	10.70 (1.79)	11.06 (1.74)	10.72 (2.02)	9.82 (1.73)	10.48 (1.62)	10.43 (1.90)
Social Competence	10.42 (1.56)	10.65 (1.52)	10.65 (1.58)	10.15 (1.32)	10.77 (1.41)	11.13 (1.65)
Developmental Supports						
Empowerment	11.75 (1.95)	12.09 (1.71)	11.87 (1.82)	10.87 (1.60)	11.78 (1.75)	11.90 (1.89)
Feeling Supported	11.17 (1.77)	11.30 (1.61)	11.38 (1.74)	10.37 (1.29)	11.17 (1.52)	11.10 (1.81)
Teacher/School Support	10.89 (2.46)	11.10 (2.28)	11.45 (2.56)	10.17 (2.24)	11.05 (2.06)	10.94 (2.22)

Note. Bx = Behavior. ASG = Any same gender behavior; EOG = Exclusively other gender behavior.

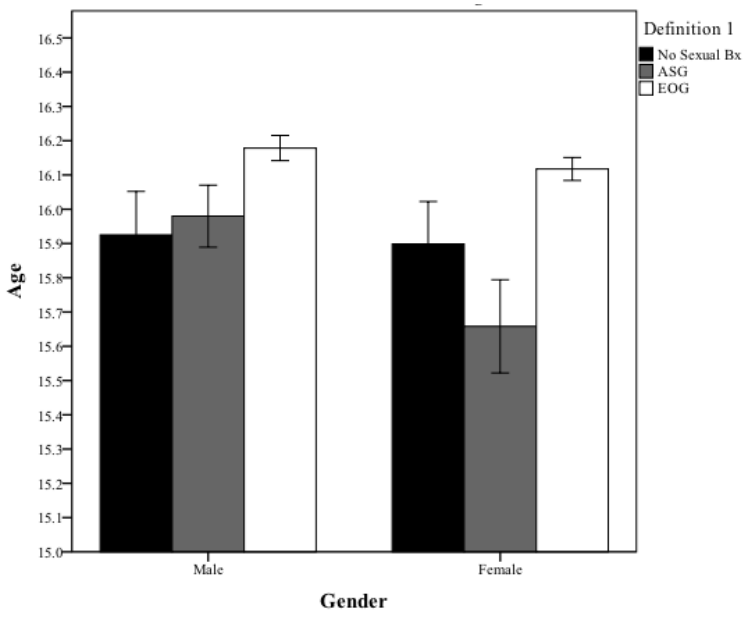

Figure 6. Definition 1. Mean Age Across Genders and Sexual Orientation Groups.

Table 14.

Demographic and Resilience Characteristics of Sexual Minority and Other Students: Definition 2

Number (N=2,000) (unweighted)	Males				Females			
	ESG	EOG	No Sexual Bx	BG	ESG	EOG	No Sexual Bx	BG
Demographic Characteristics								
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age	16.30 (.98)	16.18 (1.01)	15.92 (1.13)	15.93 (1.12)	15.57 (1.40)	16.12 (.98)	15.90 (1.03)	15.68 (1.17)
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
13 years	--	--	--	--	--	--	--	--
14 years	1 (5.0)	56 (7.4)	10 (12.5)	18 (14.1)	4 (28.6)	73 (8.6)	9 (13.0)	15 (23.1)
15 years	4 (20.0)	142 (18.8)	21 (26.3)	29 (22.7)	4 (28.6)	137 (16.1)	13 (18.8)	13 (20.0)
16 years	3 (15.0)	185 (24.5)	16 (20.0)	26 (20.3)	1 (7.1)	262 (30.8)	23 (33.3)	15 (23.1)
17 years	12 (60.0)	358 (47.4)	32 (40.0)	54 (42.2)	4 (28.6)	373 (43.9)	24 (34.8)	22 (33.8)
18 years	--	14 (1.9)	--	1 (0.8)	1 (7.1)	5 (0.6)	--	--
19-20 years	--	1 (0.1)	1 (1.3)	--	--	--	--	--
Ethnicity								
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
White	14 (70.0)	561 (74.2)	58 (72.5)	83 (64.8)	7 (50.0)	645 (75.9)	44 (63.8)	40 (61.5)
Black	1 (5.0)	31 (4.1)	4 (5.0)	8 (6.3)	2 (14.3)	24 (2.8)	6 (8.7)	4 (6.2)
Hispanic	2 (10.0)	65 (8.6)	5 (6.3)		3 (21.4)	49 (5.8)	7 (10.1)	3 (4.6)
Asian	--	13 (1.7)	2 (2.5)	3 (2.3)	--	17 (2.0)	1 (1.4)	1 (1.5)
American Indian	--	13 (1.7)	3 (3.8)	3 (2.3)	--	18 (2.1)	--	1 (1.5)
Native Hawaiian or Pacific Islander	--	--	1 (1.3)	1 (0.8)	--	1 (0.1)	--	--
Somali	--	4 (0.5)	4 (5.0)	2 (1.6)	--	1 (0.1)	--	--
Hmong	1 (5.0)	8 (1.1)	1 (1.3)	6 (4.7)	1 (7.1)	15 (1.8)	3 (4.3)	--
Other/Mixed Ethnicity	2 (10.0)	65 (8.6)	6 (7.5)	8 (6.6)	1 (7.1)	80 (9.4)	8 (11.6)	16 (24.6)
Resilience Experiences								
Developmental Skills	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Commitment to Learning	11.15 (1.35)	10.77 (1.31)	10.81 (1.22)	10.43 (1.39)	10.71 (1.48)	11.09 (1.24)	11.29 (1.18)	10.43 (1.19)
Positive Identity	10.34 (1.59)	11.06 (1.74)	10.72 (2.02)	10.76 (1.82)	9.65 (1.88)	10.48 (1.62)	10.43 (1.90)	9.85 (1.72)
Social Competence	10.57 (0.98)	10.65 (1.52)	10.65 (1.58)	10.40 (1.63)	10.51 (1.16)	10.77 (1.41)	11.13 (1.65)	10.07 (1.35)
Developmental Supports								
Empowerment	11.81 (1.74)	12.09 (1.71)	11.87 (1.82)	11.74 (1.98)	10.36 (1.34)	11.78 (1.75)	11.90 (1.89)	10.98 (1.64)
Feeling Supported	11.24 (1.12)	11.30 (1.61)	11.38 (1.74)	11.16 (1.86)	10.16 (1.59)	11.17 (1.53)	11.10 (1.81)	10.42 (1.22)
Teacher/School Support	11.69 (2.18)	11.10 (2.28)	11.45 (2.56)	10.76 (2.48)	10.85 (2.07)	11.05 (2.06)	10.94 (2.22)	10.02 (2.26)

Note. Bx = Behavior. ASG = Any same gender behavior; EOG = Exclusively other gender behavior. BG = Both gender; ESG = Exclusively same-gender behavior.

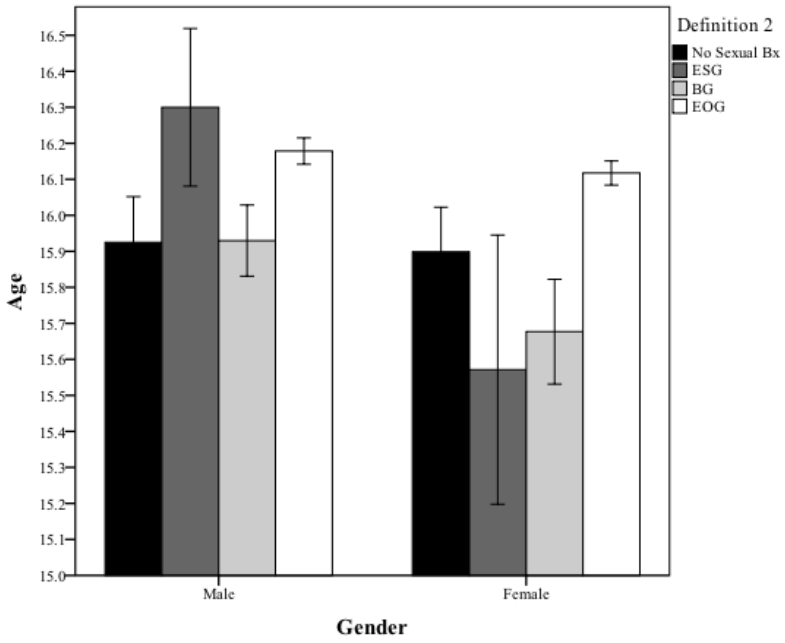

Figure 7. Definition 2. Mean Age Across Genders and Sexual Orientation Categories.

Table 15.

Demographic and Resilience Characteristics of Sexual Minority and Other Students: Definition 3

Number (N=2,000) (unweighted)	Males		Females	
	Heterosexual	LGB and Not Sure	Heterosexual	LBG and Not Sure
Demographic Characteristics				
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age	16.14 (1.02)	15.96 (1.17)	16.11 (0.98)	15.76 (1.12)
	n(%)	n(%)	n(%)	n(%)
13 years	--	--	--	--
14 years	75 (8.3)	10 (13.3)	80 (9.2)	21 (16.9)
15 years	178 (19.6)	18 (24.0)	134 (15.3)	33 (26.6)
16 years	215 (23.7)	15 (20.0)	276 (31.6)	25 (20.2)
17 years	426 (46.9)	30 (40.0)	378 (43.2)	45 (36.3)
18 years	14 (1.5)	1 (1.3)	6 (0.7)	--
19-20 years	1 (0.1)	1 (1.3)	--	--
Ethnicity				
	n(%)	n(%)	n(%)	n(%)
White	666 (73.3)	52 (65.0)	665 (76.1)	71 (57.3)
Black	40 (4.4)	4 (5.3)	28 (3.2)	8 (6.5)
Hispanic	82 (9.0)	4 (5.3)	50 (5.7)	12 (9.7)
Asian	15 (1.7)	3 (4.0)	16 (1.8)	3 (2.4)
American Indian	17 (1.9)	2 (2.7)	16 (1.8)	3 (2.4)
Native Hawaiian or Pacific Islander	2 (0.2)	--	1 (0.1)	--
Somali	2 (0.2)	4 (5.3)	1 (0.1)	--
Hmong	14 (1.5)	2 (2.7)	14 (1.6)	5 (4.0)
Other/Mixed Ethnicity	71 (7.8)	6 (8.0)	83 (9.5)	22 (17.7)
Resilience Experiences				
Developmental Skills	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Commitment to Learning	10.76 (1.30)	10.42 (1.52)	11.12 (1.24)	10.61 (1.20)
Positive Identity	11.03 (1.78)	10.37 (1.71)	10.52 (1.61)	9.66 (1.79)
Social Competence	10.66 (1.54)	10.16 (1.37)	10.81 (1.43)	10.26 (1.32)
Developmental Supports				
Empowerment	12.09 (1.74)	11.23 (1.79)	11.82 (1.73)	10.95 (1.80)
Feeling Supported	11.35 (1.64)	10.60 (1.64)	11.19 (1.55)	10.48 (1.36)
Teacher/School Support	11.14 (2.82)	10.51 (2.81)	11.03 (2.08)	10.53 (2.11)

Note. Higher scores on Development Skills and Supports indicated a greater presence of the skill or support. Bx = Behavior. L = Lesbian; B = Bisexual; G = Gay.

Table 16.

Demographic and Resilience Characteristics of Sexual Minority and Other Students: Definition 4

Number (N=2,000) (unweighted)	Males			Females		
	Heterosexual	B	G	Heterosexual	B	L
Demographic Characteristics						
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age	16.14 (1.02)	15.92 (1.16)	15.89 (1.08)	16.11 (.98)	15.77 (1.12)	15.64 (1.28)
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
13 years	--	--	--	--	--	--
14 years	75 (8.3)	6 (16.2)	2 (11.1)	80 (9.2)	14 (17.7)	3 (21.4)
15 years	178 (19.6)	7 (18.9)	5 (27.8)	134 (15.3)	18 (22.8)	5 (35.7)
16 years	215 (23.7)	9 (24.3)	4 (22.2)	276 (31.6)	19 (24.1)	--
17 years	436 (46.9)	14 (37.8)	7 (28.9)	378 (43.2)	28 (35.4)	6 (42.9)
18 years	14 (1.5)	1 (2.7)	--	6 (0.7)	--	--
19-20 years	1 (0.1)	--	--	--	--	--
Ethnicity						
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
White	666 (73.3)	29 (78.4)	12 (60.0)	665 (76.1)	45 (57.0)	7 (50.0)
Black	40 (4.4)	1 (2.7)	1 (5.6)	28 (3.2)	6 (7.6)	--
Hispanic	82 (9.0)	2 (5.4)	1 (5.6)	50 (5.7)	9 (11.4)	3 (21.4)
Asian	15 (1.7)	1 (2.7)	1 (5.6)	16 (1.8)	2 (2.5)	--
American Indian	17 (1.9)	1 (2.7)	--	16 (1.8)	3 (3.8)	--
Native Hawaiian or Pacific Islander	2 (0.2)	--	--	1 (0.1)	--	--
Somali	2 (0.2)	--	2 (11.1)	1 (0.1)	--	--
Hmong	14 (1.5)	--	1 (5.6)	14 (1.6)	2 (2.5)	--
Other/Mixed Ethnicity	71 (7.8)	3 (8.1)	2 (11.1)	83 (9.5)	12 (15.2)	4 (28.6)
Resilience Experiences						
Developmental Skills	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Commitment to Learning	10.76 (1.30)	10.76 (1.53)	10.56 (1.38)	11.12 (1.24)	10.62 (1.08)	10.27 (1.51)
Positive Identity	11.03 (1.76)	10.48 (1.46)	9.86 (1.82)	10.53 (1.61)	9.41 (1.58)	10.10 (1.96)
Social Competence	10.66 (1.54)	10.42 (1.27)	9.96 (1.43)	10.81 (1.44)	9.99 (1.12)	10.46 (1.33)
Developmental Supports						
Empowerment	12.09 (1.74)	11.48 (1.61)	10.97 (2.05)	11.82 (1.73)	10.71 (1.42)	11.29 (2.31)
Feeling Supported	11.34 (1.64)	11.12 (1.51)	10.55 (1.71)	11.19 (1.55)	10.27 (1.24)	10.46 (1.50)
Teacher/School Support	11.14 (2.28)	11.43 (2.15)	10.55 (3.14)	11.03 (2.08)	10.44 (2.14)	10.03 (2.18)

Note. Higher scores on Development Skills and Supports indicated a greater presence of the skill or support. Bx = Behavior. B = Bisexual; L = Lesbian; G = Gay.

Table 17.

Demographic and Resilience Characteristics of Sexual Minority and Other Students: Definition 5

Number (N=2,000) (unweighted)	Males				Females			
	Heterosexual	B	G	Not Sure/Q	Heterosexual	B	L	Not Sure/Q
Demographic Characteristics								
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age	16.14 (1.02)	15.92 (1.16)	15.89 (1.08)	16.10 (1.30)	16.11 (.98)	15.77 (1.12)	15.64 (1.28)	15.77 (1.09)
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
14 years	75 (8.3)	6 (16.2)	2 (11.1)	2 (10.0)	80 (9.2)	14 (17.7)	3 (21.4)	4 (12.9)
15 years	178 (19.6)	7 (18.9)	5 (27.8)	6 (30.0)	134 (15.3)	18 (22.8)	5 (35.7)	10 (32.3)
16 years	215 (23.7)	9 (24.3)	4 (22.2)	2 (10.0)	276 (31.6)	19 (24.1)	--	6 (19.4)
17 years	436 (46.9)	14 (37.8)	7 (28.9)	9 (44.0)	378 (43.2)	28 (35.4)	6 (42.9)	11 (35.5)
18 years	14 (1.5)	1 (2.7)	--	--	6 (0.7)	--	--	--
19-20 years	1 (0.1)	--	--	1 (5.0)	--	--	--	--
Ethnicity								
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
White	666 (73.3)	29 (78.4)	12 (60.0)	11 (55.0)	665 (76.1)	45 (57.0)	7 (50.0)	19 (61.3)
Black	40 (4.4)	1 (2.7)	1 (5.6)	2 (10.0)	28 (3.2)	6 (7.6)	--	2 (6.5)
Hispanic	82 (9.0)	2 (5.4)	1 (5.6)	1 (5.0)	50 (5.7)	9 (11.4)	3 (21.4)	--
Asian	15 (1.7)	1 (2.7)	1 (5.6)	1 (5.0)	16 (1.8)	2 (2.5)	--	1 (3.2)
American Indian	17 (1.9)	1 (2.7)	--	1 (5.0)	16 (1.8)	3 (3.8)	--	--
Native Hawaiian or Pacific Islander	2 (0.2)	--	--	--	1 (0.1)	--	--	--
Somali	2 (0.2)	--	2 (11.1)	2 (10.0)	1 (0.1)	--	--	--
Hmong	14 (1.5)	--	1 (5.6)	1 (5.0)	14 (1.6)	2 (2.5)	--	3 (9.7)
Other/Mixed Ethnicity	71 (7.8)	3 (8.1)	2 (11.1)	1 (5.0)	83 (9.5)	12 (15.2)	4 (28.6)	6 (19.4)
Resilience Experiences								
Developmental Skills	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Commitment to Learning	10.76 (1.30)	10.76 (1.53)	10.56 (1.38)	9.69 (1.42)	11.12 (1.24)	10.62 (1.08)	10.27 (1.51)	10.74 (1.34)
Positive Identity	11.03 (1.76)	10.48 (1.46)	9.86 (1.82)	9.63 (2.02)	10.53 (1.61)	9.41 (1.58)	10.10 (1.96)	10.09 (2.14)
Social Competence	10.66 (1.54)	10.42 (1.27)	9.96 (1.43)	9.89 (1.42)	10.81 (1.44)	9.99 (1.12)	10.46 (1.33)	10.86 (1.60)
Developmental Supports								
Empowerment	12.09 (1.74)	11.48 (1.61)	10.97 (2.05)	10.99 (1.87)	11.82 (1.73)	10.71 (1.42)	11.29 (2.31)	11.40 (2.31)
Feeling Supported	11.34 (1.64)	11.12 (1.51)	10.55 (1.71)	9.70 (1.49)	11.19 (1.55)	10.27 (1.24)	10.46 (1.50)	11.04 (1.45)
Teacher/School Support	11.14 (2.28)	11.43 (2.15)	10.55 (3.14)	8.78 (2.89)	11.03 (2.08)	10.44 (2.14)	10.03 (2.18)	10.98 (2.00)

Note. Higher scores on Development Skills and Supports indicated a greater presence of the skill or support. Bx = Behavior. L = Lesbian; G = Gay; B = Bisexual; Q = Questioning.

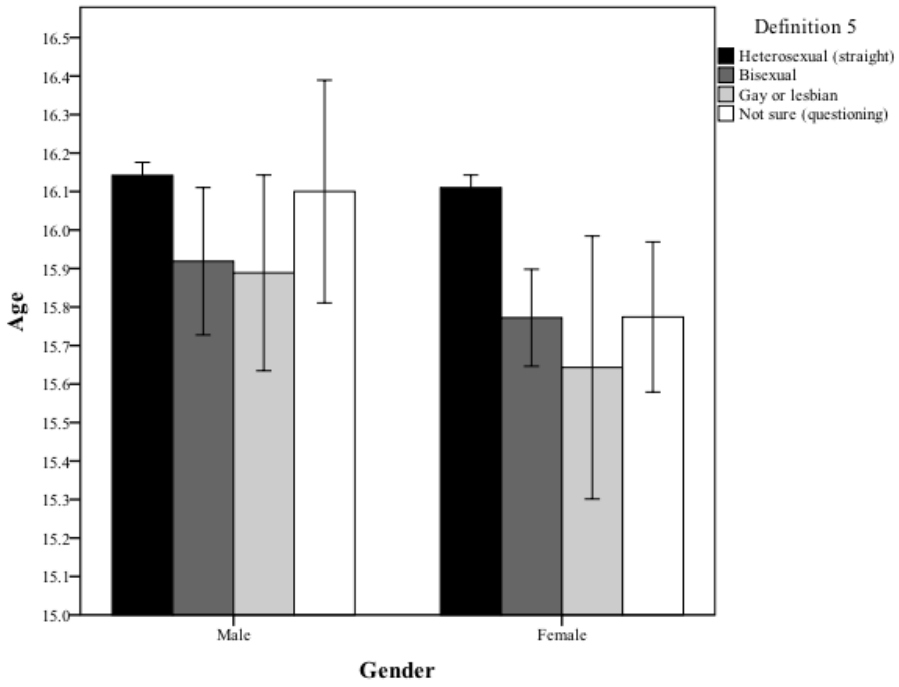

Figure 8. Definitions 3, 4, and 5. Mean Ages Across Genders and Sexual Orientation Categories.

Developmental Skills and Supports

One-way ANOVA, Welch's adjusted *F* Ratio, and Independent Samples T-tests determined the prevalence of developmental skills and supports across the five definitions of sexual minority groups.

Definition 1. Definition 1 distinguished students that reported no sexual behavior from those that reported any same gender sexual behavior (ASG) and those that reported exclusively other gender sexual behavior (EOG).

Developmental Skills. There was a statistically significant difference in developmental skill scores across Definition 1 groups as determined by the one-way ANOVA, $F(2, 1{,}979) = 11.86$, $p < .000$ (Commitment to Learning), and $F(2, 1{,}979) = 8.34$, $p < .000$ (Social Competence). Tukey post hoc analyses revealed that students that

reported no sexual behavior (M = 11.03, SD = 1.22) scored higher on Commitment to Learning than those students that reported any sexual contact with partners of the same gender (M = 10.51, SD = 1.34; ASG). In addition, students that reported sexual contact exclusively with other-gender partners (M = 10.94, SD = 1.28; EOG) scored higher on Commitment to Learning than ASG students. Finally, in regards to Social Competence, students that reported no sexual behavior (M = 10.87, SD = 1.62) scored higher than ASG students (M = 10.32, SD = 1.48). In addition, EOG students (M = 10.71, SD = 1.46) scored higher than ASG students.

Developmental Supports. There was a statistically significant difference in developmental support scores of Empowerment across Definition 1 groups as determined by the one-way ANOVA, $F(2, 1{,}979) = 7.57$, $p < .000$. Tukey post hoc analyses revealed that ASG students (M = 11.44, SD = 1.88) scored lower on Empowerment compared to EOG students (M = 11.93, SD = 1.74).

Definition 2. Definition 2 distinguished students that reported no sexual behavior from students that reported exclusively same gender sexual behavior (ESG), exclusively other gender sexual behavior (EOG), and sexual behavior with both males and females (BG).

Developmental Skills. There was a statistically significant difference in two of the three developmental skill scores across Definition 2 groups as determined by the one-way ANOVA, $F(3, 1{,}978) = 9.60$, $p < .000$ (Commitment to Learning), and $F(3, 1{,}978) = 5.86$, $p < .000$ (Social Competence). Tukey post hoc analyses revealed that students that reported no sexual behavior (M = 11.03, SD = 1.22) scored higher on Commitment to Learning than those students that reported any sexual contact with partners of both the

same and other gender (M = 10.43, SD = 1.32; BG). Similarly, students that reported sexual behavior exclusively with other-gender partners (M = 10.71, SD = 1.46) scored higher on Social Competence than BG students (M = 10.28, SD = 1.54)

Developmental Supports. There was a statistically significant difference in one of the three developmental support scores across Definition 2 groups as determined by the one-way ANOVA, $F(3, 1{,}978) = 5.27$, $p < .000$ (Empowerment).

Definition 3. Definition 3 distinguished students that identified as heterosexual from those that identified as lesbian, gay, bisexual, or not sure.

Developmental Skills. There was a statistically significant difference in developmental skill scores across Definition 3 groups as determined by the Independent Samples T-tests, $t(1980) = 4.13$, $p < .000$ (Commitment to Learning), $t(1980) = 6.67$, $p < .000$ (Positive Identity), and $t(1980) = 4.60$, $p < .000$ (Social Competence). Students that identified as Heterosexual scored higher on Commitment to Learning (M = 10.94, SD = 1.28) than those students that identified as bisexual (B), gay (G), lesbian (L), or Not Sure/Questioning (M = 10.54, SD = 1.33); the same trend occurred for Positive Identity (M = 10.78, SD = 1.72; M = 9.93, SD = 1.79), and Social Competence (M = 10.73, SD = 1.49; M = 10.22, SD = 1.34).

Developmental Supports. There was a statistically significant difference in developmental support scores across Definition 3 groups as determined by the Independent Samples T-tests, $t(1980) = 6.92$, $p < .000$ (Empowerment), $t(1980) = 6.26$, $p < .000$ (Support), and $t(1980) = 3.45$, $p < .000$ (Teacher/School Support). Students that identified as Heterosexual scored higher on Empowerment (M = 11.96, SD = 1.74) than those students that identified as B, G, L, or Not Sure/Questioning (M = 11.05, SD =

1.80); the same trend occurred for Support (M = 11.27, SD = 1.60; M = 10.53, SD = 1.47), and Teacher/School Support (M = 11.09, SD = 2.19; M = 10.52, SD = 2.39).

Definition 4. Definition 4 distinguished those students that identified as heterosexual from those that identified as bisexual, and those that identified as gay or lesbian.

Developmental Skills. There was a statistically significant difference in two of the three developmental skill scores across Definition 4 groups as determined by the one-way ANOVA, $F(2, 1{,}928) = 22.98$, $p < .000$ (Positive Identity), and Welch's ANOVA, $F(2, 69.71) = 15.67$, $p < .000$ (Social Competence). Tukey post hoc analyses revealed that students that identified as heterosexual (M = 10.75, SD = 1.76) scored higher on Positive Identity than students that identified as B (M = 9.71, SD = 1.66). Finally, students that identified as heterosexual (M = 10.70, SD = 1.55) scored higher on Social Competence than students that identified as B (M = 10.09, SD = 1.26).

Developmental Supports. There was a statistically significant difference in two of the three developmental support scores across Definition 4 groups as determined by the Welch's ANOVA, $F(2, 68.44) = 24.89$, $p < .000$ (Empowerment), and one-way ANOVA, $F(2, 1{,}928) = 14.83$, $p < .000$ (Support). Tukey post hoc analyses revealed that students that identified as heterosexual scored higher on both Empowerment (M = 11.95, SD = 1.74) and Support (M = 11.27, SD = 1.60) than those students that identified as B (M = 10.96, SD = 1.52, and M = 10.53, SD = 1.38, respectively).

Definition 5. Definition 5 distinguished students that identified as heterosexual from those that identified as gay or lesbian, those that identified as bisexual, and those that identified as not sure or questioning.

Developmental Skills. There was a statistically significant difference in developmental skill scores across Definition 5 groups as determined by the one-way ANOVA, $F(3, 1{,}978) = 6.58$, $p < .000$ (Commitment to Learning), $F(3, 1{,}978) = 16.05$, $p < .000$ (Positive Identity), and Welch's ANOVA, $F(3, 87.91) = 10.62$, $p < .000$ (Social Competence). Tukey post hoc analyses revealed that students that identified as heterosexual scored higher on Positive Identity (M = 10.78, SD = 1.72) and Social Competence (M = 10.73, SD = 1.49) compared to students that identified as B (M = 9.74, SD = 1.62; and M = 10.13, SD = 1.18, respectively).

Developmental Supports. There was a statistically significant difference in developmental support scores across Definition 5 groups as determined by the Welch's ANOVA, $F(3, 85.73) = 17.94$, $p < .000$ (Empowerment), and one-way ANOVA, $F(3, 1{,}996) = 16.13$, $p < .001$ (Support), and $F(3, 1{,}1978) = 13.07$, $p < .000$ (Teacher/School Support). Students that identified as heterosexual scored higher on Empowerment (M = 11.96, SD = 1.74) and Support (M = 11.27, SD = 1.60) compared to students that identified as B (M = 10.95, SD = 1.52; and M = 10.54, SD = 1.38, respectively).

Resilience Profiles

An LPA was conducted to determine the optimal number of classes of sexual minority youth resilience. Six indicators were included in these analyses: Commitment to Learning, Positive Identity, Social Competence, Empowerment, Support, and Teacher/School Support. To determine the optimal solution, one to twelve profile

solutions were estimated. The AIC, BIC, sample adjusted BIC, entropy, Lo-Mendell-Rubin LRT, and BLRT statistics are provided in

Table 18. After evaluating all fit indices, it was determined that the 11-profile solution was optimal according to the BLRT and entropy; however, the three-profile solution was optimal according to the Lo-Mendell-Rubin LRT. Profile statistics for one through twelve profile solutions are summarized in the table below.

Table 18.

Profile Solution Statistics

	1 Profile	*2 Profiles*	*3 Profiles*	*4 Profiles*	*5 Profiles*	*6 Profiles*	*7 Profiles*	*8 Profiles*	*9 Profiles*	*10 Profiles*	*11 Profiles*	*12 Profiles*
AIC	45821.05	42540.72	41292.15	40679.78	40301.25	40070.45	39929.19	39818.62	39756.40	39630.12	39504.80	39523.67
BIC	45888.15	42646.96	41437.54	40864.31	40524.93	40333.26	40231.15	40159.72	40136.65	40049.51	39963.33	40021.35
Sample Adjusted BIC	45850.02	42586.60	41354.94	40759.47	40397.84	40183.94	40059.59	39965.92	39920.61	39811.23	39702.81	39738.59
Entropy	*na*	.84	.81	.83	.85	.82	.82	.83	.84	.84	.85	.84
[1]Lo-Mendell-Rubin	*na*	2 *v* 1 3233.484***	3 *v* 2 1239.25**	4 *v* 3 614.801	5 *v* 4 388.94	6 *v* 5 240.285	7 v 6 152.388	8 *v* 7 119.923	9 *v* 8 83.781	10 *v* 9 105.792	11 *v* 10 121.804	12 *v* 11 -3.063
[2]N for each Profile	P=1982	P1=1389 P2=593	P1=569 P2=1122 P3=291	P1=1061 P2=473 P3=311 P4=137	P1=304 P2=1037 P3=102 P4=452 P5=87	P1=227 P2=860 P3=100 P4=569 P5=66 P6=160	P1=796 P2=586 P3=112 P4=73 P5=217 P6=52 P7=146	P1=266 P2=29 P3=871 P4=99 P5=131 P6=50 P7=473 P8=63	P1=233 P2=29 P3=48 P4=89 P5=45 P6=817 P7=71 P8=128 P9=522	P1=212 P2=90 P3=39 P4=110 P5=21 P6=742 P7=56 P8=66 P9=606 P10=40	P1=30 P2=261 P3=93 P4=71 P5=41 P6=38 P7=517 P8=762 P9=91 P10=22 P11=56	P1=63 P2=835 P3=39 P4=34 P5=70 P6=39 P7=74 P8=328 P9=96 P10=20 P11=55 P12=329
[3]BLRT		2 *v* 1	3 *v* 2	4 *v* 3	5 *v* 4	6 *v* 5	7 *v* 6	8 *v* 7	9 *v* 8	10 *v* 9	11 *v* 10	12 *v* 11
p-Value	*na*	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000

Note. [1]Lo-Mendell-Rubin Adjusted LRT test used. [2]Final profile counts and proportions for the latent profiles based on their most likely latent profile membership. [3]BLRT = Bootstrapped parametric likelihood ratio test. * $p < .05$. ** $p < .01$. ***$p < .001$.

Using the three-profile solution, those in profile one had an average posterior probability of being in profile one of .895. The mean estimated posterior probability of these students being in profile two was .105, and being in profile three was .000. Those in profile two had an average posterior probability of being in profile two of .911. The mean estimated posterior probability of these students being in profile one was .066 and profile three is .022. Finally, those in profile three had an average posterior probability of being in profile three of .944. The mean estimated posterior probability of these students being in profile one was .000 and profile two was .056.

Indicator variables were standardized and profile plots were examined to identify qualitative differences across profile-solutions. The three-profile solution plot displayed three distinct profiles that were conceptually interpretable (i.e., Low, Medium, and High Resilience profiles). The eleven-profile solution could be an artifact of the large sample size. For the purpose of interpretability and greatest parsimony, the three-profile solution was selected as optimal. Standardized means across developmental skills and supports are summarized in Table 19.

Table 19.

Means for 3 Profile Solution

Variable	3 Profile Solution		
	First Profile	Second Profile	Third Profile
Commitment to Learn	-.76 (.83)	.18 (.83)	.80 (.97)
Positive Identity	-.88 (.68)	.06 (.59)	1.51 (.87)
Social Communication	-.82 (.65)	.03 (.59)	1.50 (1.06)
Empowerment	-.98 (.52)	.10 (.64)	1.52 (.70)
Support	-.87 (.54)	.08 (.68)	1.40 (1.00)
Teacher/School Support	-.83 (.78)	.15 (.73)	1.05 (1.00)
N	569	1,122	291

Note. Means have been standardized (Mean = 0; Standard Deviation = 1). Higher scores indicate greater resilience.

Figure 9 describes patterns identified through LPA; more specifically, standardized mean scores for each of the three identified groups. The three groups differed across variables of resilience. The low resilience group (Profile 1) consisted of 569 individuals with the lowest standardized means across all developmental skills and supports. The medium resilience group (Profile 2) consisted of 1,122 individuals. Finally, the high resilience group (Profile 3) consisted of 291 individuals.

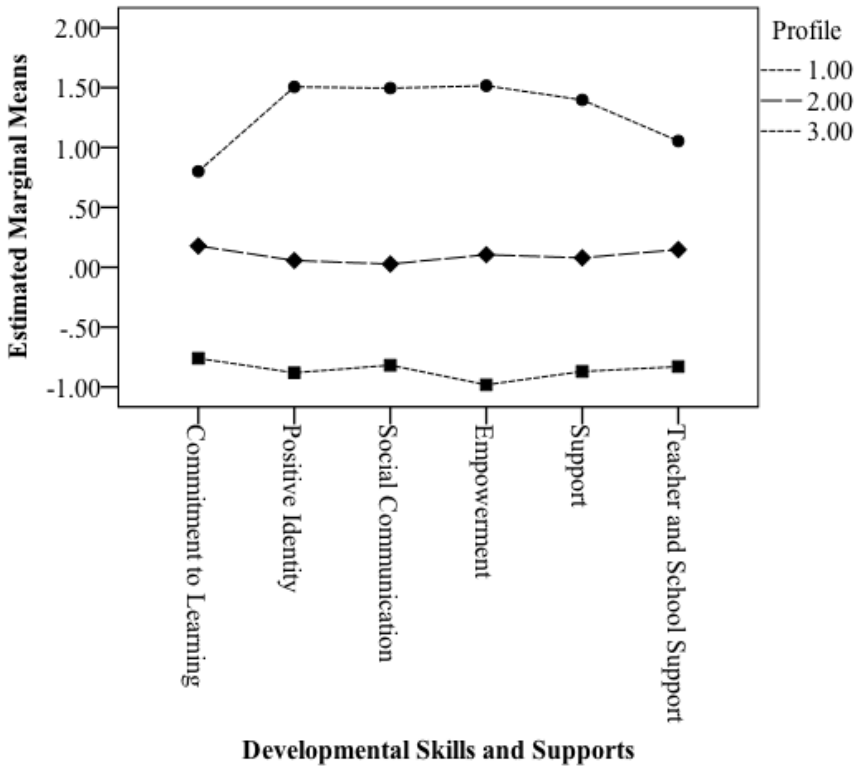

Figure 9. Latent Profile Analysis using six resilience-related factors describing three groups: 1 (low resilience), 2 (medium resilience), and 3 (high resilience).

Table 20 presents the results of comparisons between the resilience groups. The low resilience group included the highest proportion of sexual minority youth (nearly 25%), the highest proportion of males (53.6%), and were also the youngest across profiles. In addition, the low resilience group had the smallest proportion of White students.

Table 20.

Demographics by Profile

	Profile 1 (Low Resilience)	Profile 2 (Medium Resilience)	Profile 3 (High Resilience)
Age M(SD)	15.84 (1.08)	16.19 (.99)	16.23 (.96)
Gender: Total N (% Female)	569 (53.6%)	1122 (50.2%)	291 (44.7%)
Ethnicity: N (%)			
American Indian	23 (4%)	13 (1.2%)	2 (.7%)
Asian	12 (2.1%)	18 (1.6%)	7 (2.4%)
Black	21 (3.7%)	41 (3.7%)	18 (6.2%)
Native Hawaiian	0 (0%)	3 (.3%)	0 (0%)
White	396 (69.6%)	847 (75.5%)	209 (71.8%)
Other/Mixed Ethnicity	59 (10.4%)	101 (9%)	22 (7.6%)
Hispanic/Latino	46 (8.1%)	78 (7.0%)	24 (8.2%)
Somali	3 (.5%)	2 (.2%)	2 (.7%)
Hmong	9 (1.6%)	19 (1.7%)	7 (2.4%)
Sexual Orientation	N = 569	N = 1122	N = 291
Sexual Minority Youth N(%)	141 (24.8%)	164 (14.6%)	34 (11.7%)
Heterosexual Youth N(%)	428 (75.2%)	958 (85.4%)	257 (88.3%)

Note. M = Mean; SD = Standard Deviation

Predicting Group Membership

Following the LPA, multinomial logistic regression was conducted to determine which variables predicted group membership across identified profiles (low, medium, and high resilience). Predictor variables included age, gender, ethnicity, and sexual minority status (Heterosexual v. non-heterosexual). Students identified as non-heterosexual across any of the five sexual orientation definitions were identified as sexual minority youth. All remaining youth were coded as heterosexual youth. Using a conservative alpha (.001), results are reported below. Profile 3 (high resilience) served as the referent group. A test of the full model against a constant only model was statistically significant, indicating that the predictors, as a set, reliably distinguished between low, medium, and high

resilience profiles ($\chi^2 = 110.077$, $p < .001$ with $df = 22$). Age and sexual minority status were the only predictors that had a significant overall effect on profile membership ($p < .000$). Nagelkerke's pseudo R^2 of .063 indicated that the set of predictors accounted for approximately 6.3% of variance in profile grouping; however, this statistic should be interpreted with caution. The prediction for Profile 2 (95.4%) had greater classification accuracy compared to Profiles 1 (12.5%) and 3 (.3%).

Overall, all else held constant, heterosexual individuals were less likely to be identified in Profile 1 (low resilience) compared to Profile 3 (high resilience; odds ratio [OR] = .40, 95% confidence interval [CI]: .27, .61). Age also predicted Profile 1 membership: all else held constant, older individuals were less likely to be identified in Profile 1 (low resilience) compared to Profile 3 ([OR] = .72, [CI]: .62, .83). Profiles 2 (medium resilience) and 3 (high resilience) were not significantly different with respect to the predictor variables (age, gender, ethnicity, and sexual orientation).

Table 21.

Multinomial logistic regression results

Profile	Predictor Variable	Estimated Coefficient(B)	Standard Error	Sig.	Odds Ratio	Probability
1	Intercept	6.95	1.21	.000	-	-
	Age	-.33	.074	.000	.72	.42
	Male	-.37	.15	.01	.69	.41
	Female	0	-	-	-	-
	Ethnicity (American Indian)	1.56	.75	.04	4.75	.83
	Ethnicity (Asian)	-.20	.49	.69	.82	.45
	Ethnicity (Black)	-.64	.34	.06	.53	.35
	Ethnicity (Native Hawaiian)	-.36	.000	-	.70	.41
	Ethnicity (Hmong)	-.63	.52	.23	.53	.35
	Ethnicity (Multiple Ethnicities)	.15	.27	.58	1.16	.54
	Ethnicity (Latino)	-.10	.27	.71	.90	.47
	Ethnicity (Somali)	-.69	.97	.48	.51	.34
	Ethnicity (White)	0	-	-	-	-
	Heterosexual	-.91	.21	.000	.40	.29
	Sexual Minority	0	-	-	-	-
2	Intercept	2.38	1.13	.04	-	-
	Age	-.04	.07	.60	.97	.49
	Male	-.22	.13	.10	.81	.45
	Female	0	-	-	-	-
	Ethnicity (American Indian)	.44	.77	.57	1.55	.61
	Ethnicity (Asian)	-.49	.45	.28	.62	.38
	Ethnicity (Black)	-.59	.30	.04	.55	.35
	Ethnicity (Native Hawaiian)	18.85	8393.75	.998	153820451	1
	Ethnicity (Hmong)	.08	.25	.74	1.09	.52
	Ethnicity (Multiple Ethnicities)	-.23	.25	.36	.80	.44
	Ethnicity (Latino)	.25	.50	.62	1.29	.56
	Ethnicity (Somali)	-1.49	1.01	.14	.23	.19
	Ethnicity (White)	0	-	-	-	-
	Heterosexual	-.32	.21	.12	.72	.42
	Sexual Minority	0	-	-	-	-

Note. Odds Ratio = probability / (1 – probability).

Discussion

This study examined the prevalence of developmental skills and supports across alternate definitions of sexual orientation, latent profiles across the sample of youth, and predictive variables of profile membership. Further understanding these developmental assets as potentially protective factors can help researchers and educators shift intervention goals from amelioration of risk to capitalizing on resilience, which may

inadvertently also increase intervention acceptability and efficacy (Herrick, Stall, Goldhammer, Egan, & Mayer, 2014).

Overall, students that reported no sexual behavior, exclusively other gender sexual behavior (EOG), and/or a heterosexual sexual orientation identity scored higher on developmental skills and supports compared to students that reported any same-gender sexual behavior (ASG), sexual behavior with both male and female partners (BG), and/or a bisexual sexual orientation identity (B). Across students, the latent profile analyses determined that three profiles existed: a low, medium, and high resilience profile group. These results indicated that students may be equipped with different developmental skills and supports to varying degrees. Finally, age and sexual minority status were both significant predictors of profile membership. Ethnicity and gender were unrelated to profile membership. While the high (Profile 3; *Figure 9*) and low resilience profiles (Profile 1) were significantly different with respect to age and sexual minority status, this did not hold true for the medium resilience group (Profile 2).

Developmental Skills and Supports

Many interesting and sometimes unexpected patterns emerged, which are discussed in detail below. Although these patterns are explored and implications derived, it is important to emphasize that this study was exploratory and data are relational with very little support to derive causal mechanisms between sexual orientation identity, developmental skills and supports. Across definitions constructed using the gender and sexual behavior items, students that reported no sexual behavior and students that reported sexual behavior with exclusively other-gender partners (EOG) scored higher on Commitment to Learning and Social Competence compared to students that reported any

sexual contact with partners of the same gender (ASG). EOG students also scored higher on Empowerment compared to ASG students. Students that reported no sexual behavior scored higher on Commitment to Learning compared to students that reported sexual contact with partners of both the same and other gender (BG). Finally, EOG students scored higher on Social Competence compared to BG students. Overall, there were more significant differences in scores on developmental skills (Commitment to Learning, Positive Identity, and Social Competence) across sexual orientation groups based on reports of sexual behavior compared to developmental supports (Empowerment, Support, and Teacher/School Support). Across definitions constructed using the sexual orientation identity items, students that identified as heterosexual scored higher on Positive Identity, Social Competence, Empowerment, and Support compared to students that identified as bisexual (B). This is consistent with previous research documenting that bisexual adolescents are particularly more likely to report lower connectedness to school and adults, and lower peer support (Bos, Sandfort, de Bruyn, & Hakvoort, 2008; Busseri, et al., 2006; Eisenberg & Resnick, 2006; Lam, Stewart, Leung, Lee, Wong, et al., 2004; Saewyc, Homma, Skay, Bearinger, Resnick, & Reis, 2009; Williams, Connelly, Pepler, & Craig, 2003).

These results highlight potential intervention foci. Although examining individual-level risk factors and outcomes has advanced research and practice surrounding sexual minority youth, studying risk *and* resilience across multiple contexts concomitantly, and across all youth, can offer important implications for research and practice. While both risk and protective factors can exist at the individual level, they can also be characteristics of and influenced by an individual's environment (Russell, 2005),

or perceived environment. These risk and protective factors can also exist at the interpersonal or community levels (Garmezy, 1985; Masten, Morrison, Pellegrini, & Tellegan, 1990; Myers and Taylor, 1998). The following are examples of some interventions that capitalize on these developmental skills and supports.

According to Snapp and colleagues (2015), students' perceptions of personal safety, including their perceptions of safety at school, were more positive when course curriculum at their school included positive representations of sexual minority individuals, as well as sexual minority-relevant historical events. Within an MTSS framework, this is one examples of a universal, tier one effort on behalf of a school that can instill feelings of empowerment and perceived support. In addition to sexual minority-inclusive curricula, other efforts include comprehensive, sexual minority and gender identity/expression-inclusive (i.e., gender non-conforming youth) policies (i.e., bathroom, bullying, and dress-code), sexual minority supportive student-led clubs (i.e., Gay Straight Alliance) and visible safe spaces, availability of professional development and training opportunities for school teachers and staff related to sexual minority youth, and visibility of resources relevant to sexual orientation (i.e., sexual minority-relevant sexual education resources, etc.). These universal interventions can help decrease homophobic victimization and heterosexism, and increase staff intervention in the presence of verbal and/or physical harassment and assault (Kosciw, Greytak, Giga, Villenas, & Danischewski, 2016).

There is documented evidence for positive effects of universal interventions. The California Preventing School Harassment (PSH) survey (O'Shaughnessy, Russell, Heck, Calhoun, & Laub, 2004) results indicated that students reported feeling safer, fewer

instances of harassment, a stronger connection to the school, and increased feelings that adults cared, that teachers were fair, and that they had a voice and were able to make contributions to school when schools did the following: (i) implemented policies that explicitly prohibited harassment on the basis of actual or perceived sexual orientation or gender; and (ii) when students were aware of where they could seek resources and support related to these issues (O'Shaughnessy et al., 2004). Similarly, teachers reported a higher frequency of engaging in behaviors intended to support sexual minority youth when they worked in a school environment that had an active GSA, a comprehensive anti-bullying policy, or when they had access to professional development and training opportunities specific to sexual minority youth (Swanson & Gettinger, 2016). Finally, LGBTQ-inclusive curricula were associated with increased feelings of safety and lower levels of bullying at school (Snapp, McGuire, Sinclair, Gabrion, & Stephen, 2015).

Universal interventions and practices increase positive resilience and protective outcomes (i.e., perceived school safety). They can also decrease the occurrence of risk outcomes (Blum, McNeely, & Nonnemaker, 2002). That includes reduced levels of suicidal ideation and suicide attempts (Eisenberg & Resnick, 2006). The result of this study and previous findings provide impetus for research and scholarship to define patterns and positive practices to reduce risk and enhance resilience (Mustanski & Liu, 2013). Similarly, as mentioned previously, just as risk factors have accumulating negative effects on adolescent development, protective factors (i.e., developmental skills and supports) can also have accumulating positive effects. Risk and resilience are related. For example, teachers reported increased likelihood and frequency of engaging in behaviors

that were supportive of sexual minority youth when working in a school that had an active GSA (Swanson & Gettinger, 2016).

Resilience Profiles

Using six indicator variables (three developmental skills and three developmental supports), the latent profile analysis identified three distinct profiles: low, medium, and high resilience. Although entropy values did not peak at three profiles, the entropy value for three profiles (.81) indicated that the latent profiles were highly discriminating (Muthén & Muthén, 2007). Across profiles, variability in standardized indicator variables was greatest for Empowerment. Within each profile, Profile 3 (High resilience) had the greatest variability across the standardized indicator variables and the fewest students. In addition, across profiles, Profile 3 consisted of the smallest proportion of sexual minority youth (N = 34; 11.7%) and females (N = 291; 44.7%). However, it is important to acknowledge that each profile included both sexual minority and non-sexual minority youth. Profile 2 (Medium resilience) was the largest of the three profiles (N = 1,122). Using a person-centered analysis approach allowed for an examination of relationships among the students in the sample. In latent profile analysis, each profile represents individuals who are similar to each other, and different from students in other profiles (Muthén & Muthén, 2000). The heterogeneity across profiles in regards to sexual minority status provided evidence that it is important to examine sexual minority youth alongside non-sexual minority youth to fully understand patterns of resilience and development.

These findings remind us that many of these positive developmental assets or protective factors promote healthy development across all adolescents, regardless of their

sexual orientation identity or sexual behaviors, including school connectedness, and supportive adults, teachers, and coaches (Blum, McNeely, & Nonnemaker, 2002). In fact, these protective factors can function similarly across youth, regardless of sexual minority status (Saewyc, 2011). The current study results also suggested that students high on one developmental skill (i.e., high resilience) tended to also be high on the other developmental skills and supports, and vice versa. In other words, students with low scores on commitment to learning also had low scores on positive identity, social competence, empowerment, support, and teacher/school support. Although the majority of non-sexual minority youth developmental skill and support scores within each profile were higher than sexual minority youth scores, some sexual minority youth scores exceeded those of non-sexual minority youth. For example, Profile 3 (High Resilience) sexual minority youth Positive Identity (M = 1.72; SD = .94) and Empowerment (M = 1.73; SD = .65) scores were higher than non-sexual minority youth (i.e., heterosexual) Positive Identity (M = 1.48; SD = .86) and Empowerment (M = 1.49; SD = .71) scores. It is a possibility that a strengthened positive identity and sense of empowerment is the result of a sexual minority identity, as these individuals commonly experience high levels of victimization, marginalization, and adversity.

These findings may highlight sexual minority youth-specific resilience characteristics that most effectively mediate negative health outcomes experienced by sexual minority youth, as well as potential areas for strengths-based intervention. For example, future multi-tiered systems of support (MTSS) interventions efforts can acknowledge and reflect heterogeneity within the sexual minority youth population, and in some instances, support distinct groups of students for which these protective factors

are particularly salient, an idea that is not new to the field (Herrick, Lim, Wei, Smith, Guadamuz, Friedman, & Stall, 2011). Just as risk factors can be unique to sexual minority youth or may exist for the general population of adolescents (Saewyc, 2011), protective factors may function similarly. For example, while developing a positive identity can be challenging, particularly for sexual minority youth, intervention efforts can help these students reclaim and make meaning out of their identity (DiFulvio, 2011). In addition, interventions can help adolescents work towards acceptance and a sense of pride through access to social connections (i.e., GSAs) that create a sense of identity at the individual level, and a sense of collective identity at the group level (DiFulvio, 2011), indicating a potential for peer group context prevention and intervention efforts (Williams et al., 2005).

Predicting Group Membership

Heterosexual individuals were less likely to be identified in Profile 1 (low resilience) compared to Profile 3 (high resilience; odds ratio [OR] = .40, 95% confidence interval [CI]: .27, .61). Age also predicted Profile 1 membership: all else held constant, older individuals were less likely to be identified in Profile 1 (low resilience) compared to Profile 3 ([OR] = .72, [CI]: .62, .83). Age as a significant predictor of resilience profile membership provides important implications for intervention practice, emphasizing the importance of early intervention. This finding also has intuitive merit, as adolescence is marked by the development of some of the developmental assets in the study, including a positive identity. As mentioned previously, a number of identities develop and emerge during adolescence (McNeely & Blanchard, 2010). For many adolescents, developing a positive identity can consist of multiple iterative processes, including the development of

a sexual identity, which is likely to fluctuate given changes in self-awareness, self-concept, social relationships, and sexual experiences (Austin et al., 2007; Lesbian Gay and Bisexual Youth Sexual Orientation Measurement Work Group; Crockett & Crouter, 2014; Rosario, Meyer-Bahlburg, Hunter, Exner, Gwadz, & Keller, 1996). Given that both sexual minority status and age were significant predictors of profile membership, these may represent more salient characteristics of one's identity.

These findings provide evidence that it will be beneficial for the field to move beyond a framework in which youth are identified as at-risk or resilient. Instead, it will be important for future research to consider the context within which development occurs, and the ways in which youth navigate through different social contexts. For example, given the significance of age and sexual minority status in the present study in regards to predicting profile membership related to resilience, these may be two particularly salient characteristics that influence how youth perceive, experience, and engage with their social world (Horn, Kosciw, & Russell, 2009).

Limitations

Several limitations of the present study need to be acknowledged. Aside from those limitations acknowledged in Study 1, one major limitation in the current study was sample size. For example, due to the small sample size, not all ethnicities were represented across the three profiles (I.e., Native Hawaiian). Second, the ANOVA, Independent T-tests, and Welch's adjusted F ratio analyses were not disaggregated by gender. This decision to analyze the sample as a whole may have hidden significant differences between developmental skills and supports across sexual orientation groups specific to a single gender, rather than the entire sample. For example, results determined

that students that reported sexual behavior with exclusively other-gender partners (EOG) scored higher on Commitment to Learning and Social Competence compared to students that reported any sexual contact with partners of the same gender (ASG). However, it was not determined whether this held true for both males and females. Third, as few studies exist with similar objectives and research questions in the literature, this study was exploratory and descriptive in nature, and thus did not aim to conclude causal mechanisms underlying the relationship between developmental skills, supports, sexual orientation identity, and sexual behavior. Fourth, additional protective factors were not included in the analyses. There is a possibility that there were a number of other protective factors available in the survey data that accounted for greater variance in resilience outcomes than those examined in the analyses summarized. Finally, all retrospective data were collected via self-report, and therefore the extent to which students responded according to certain social desirability standards was unknown. Despite these shortcomings, the exploratory nature of the present study helps to refine future research and survey methodology.

Chapter 4: Synthesis and Integrated Discussion

The results of this work establish that the definitions of sexual minority youth influence how and what is learned about the population. Who is included and excluded in the population is influenced by the definition and method used to include or exclude individuals and subgroups on the basis of self-reported information. It is necessary to operationalize phenomena of interest in order to study it (Matthews, Blosnich, Farmer, & Adams, 2014). The results of the work further establish that the manner in which a population is defined and operationalized affects the results. This is a substantial challenge and of paramount concern in the study of sexual minority youth.

Thirteen Characters: LGBTTIQQ2SAA+

Some choose to identify sexual minority individuals with the acronym LGBTQ. Others use variations with as many as thirteen characters: LGBTTIQQ2SAA+. This is an attempt to be as inclusive of those who identify as lesbian, gay, bisexual, transsexual, transgender, intersex, queer, questioning, two-spirited, asexual, allies, and any other non-heterosexual or gender non-conforming individual identity (+). Although these variations in the acronym may seem trivial, the acronym represents the identification, categorization, acknowledgement, and a means by which research can communicate important findings on this diverse population. Despite the growth and evolution of this acronym in everyday use in society, research has lagged behind. Abiding by APA standards in psychological practice with sexual minority clients (2012) involves a commitment towards accurately and mindfully presenting and interpreting research findings on this heterogeneous group of individuals. Within the framework of Kane's

argument-based validity, valid, meaningful, and useful interpretations of large-scale survey responses can help us better understand the experiences of all youth.

Research on sexual minority youth has been characterized by two underlying themes: the pursuit to better understand sexual minority youth separate from heterosexual youth, and the identification of this population as an at-risk group of adolescents (Savin-Williams, 2001). Although research has advanced as we uncover the underlying mechanisms of risk, and the unique characteristics that distinguish sexual minority youth from heterosexual youth, there is potential in expanding these paradigms to include a more integrated approach. More specifically, our knowledge of how sexual minority youth and their experiences are both similar to and different from heterosexual youth, as well as our understanding of the underlying mechanisms of both risk and resilience offer opportunities for advanced understanding and improved interventions. By examining alternate definitions of sexual minority youth through a resilience-focused lens, the results of these studies having meaningful implications for both research and practice.

Study 1: Operationalization

In Study 1, prevalence rates were compared across five alternate definitions of sexual minority youth. In addition, the distribution of male and female students was compared across the definitions of sexual minority youth, and the congruence between sexual behavior and sexual identity was examined for males and females.

The results from Study 1 hold several broad implications for educators. First, educators need to interpret large-scale survey results on sexual minority youth (and all youth) in the context of methodological and analytical decisions, keeping in alignment with the language of the survey item stem and response set. There are multiple definitions

of sexual minority youth, and alternate ways to identify this subpopulation. Therefore, interpretation of results should be specific to the analytical methodology used, and specific to the intended use of the survey data. Second, sexual orientation identity and sexual behavior are not always congruent. In other words, both dimensions, and even further, all three dimensions, of sexual orientation may be required to better understand characteristics of sexual minority youth, and to identify all subgroups of the sexual minority population. This is particularly important given the interesting patterns detected across sexual behavior and sexual identity items by gender, indicating a third and final broad implication: sexual minority developmental trajectories are likely to be influenced by a number of factors and may be more variable and less linear than those models of development established in earlier research. More specifically, females in the current study were more likely to acquire a non-heterosexual identity, whereas males were more likely to report a higher number of same-gender sexual partners. Assessment of both sexual orientation identity and sexual behaviors allows us to examine the nuances that distinguish each sexual minority subgroup, by gender, which can hold implications for prevention and intervention. For example, while interventions aimed at developing a positive and affirming sexual identity may be particularly pertinent for females, interventions focusing on safe sexual behaviors may be more pertinent for males.

Study 2: Protective Factors

In Study 2, the prevalence of developmental skills and supports were compared across sexual orientation groups. In addition, the study examined the latent profiles of youth based on developmental skills and supports, and identified predictors of profile group membership.

The results from Study 2 hold several broad implications. First, research findings on risk and resilience cannot be generalized across the sexual minority youth population. More specifically, each sexual minority subgroup (i.e., bisexual, questioning, males who have male sexual partners, females who have female sexual partners, males or females who have both same and other gender sexual partners, etc.) is characterized by a unique set of protective factors, shaped by the context within which these individuals experience the school environment. For example, in the current study, individuals that identified as bisexual scored significantly lower on social competence, positive identity, empowerment, and support compared to students that identified as heterosexual. This finding did not hold true for all sexual minority subgroups, emphasizing the need to seek understanding about each sexual minority subgroup. Just as sexual minority sub-groups are heterogeneous in regards to health issues (Bostwick et al., 2014; Mustanski, Andrews, et al., 2014), they may also be heterogeneous in regards to resilience characteristics, experiences, and outcomes. Second, future research should examine the development of sexual minority youth and heterosexual youth concomitantly. Since there are general risk factors that lead to negative outcomes for all youth, there are possibly general protective factors that lead to positive outcomes for youth, regardless of sexual orientation. Similarly, there may be sexual minority specific resilience characteristics. For example, self-esteem may be a particularly important protective factor for sexual minority youth that reduces against suicidality. Finally, future research on sexual minority youth should focus on the context within which development occurs and how this may vary by sex and gender (Diamond, 2012), the various identities that develop throughout adolescence, the ways in which sexual minority youth perceive and experience the school environment,

and ways in which these perceptions are similar to and different from their heterosexual counterparts. There is an increased need for future research to consider intersectionality perspectives to explore ways in which race and ethnicity, geographic location, socioeconomic status, gender identity, and other societally and culturally-informed identities contribute to both negative and positive outcomes for sexual minority youth (Mustanski, 2015).

Conclusion

These studies aimed to address several gaps in knowledge in sexual minority research: the way in which researchers and educators define sexual minority youth, examining congruence (and incongruence) between dimensions of sexual orientation, sexual minority youth within-group heterogeneity, and intervention and prevention efforts focused on the resilience of these youth. Additional research is needed to increase our knowledge of those protective factors and experiences that contribute to the positive development of sexual minority youth. Increased knowledge regarding interventions that can capitalize on resilience offers opportunity to broaden the scope of sexual minority research while promoting healthy development and adjustment amongst sexual minority youth.

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Appendix A

Relevant Minnesota Student Survey Items

Item 1: Are you: Male, Female

Item 9: Which of the following best describes you? Heterosexual (straight), Bisexual, Gay or Lesbian, Not Sure (Questioning)

Item 101: Have you ever had sexual intercourse ("had sex")?: Yes, No (Go to Question 109)

Item 102: During the last 12 months, with how many different male partners have you had sexual intercourse? None, 1 person, 2 persons, 3 persons, 4 persons, 5 persons, 6 or more persons

Item 103: During the last 12 months, with how many different female partners have you had sexual intercourse? None, 1 person, 2 persons, 3 persons, 4 persons, 5 persons, 6 or more persons